



Australian Government

ICPPRN451 Set up for complex relief 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 reel – sheet-fed platen, cylinder or rotary printing machines for non-routine relief printing jobs.

It applies to skilled individuals working as a print machinist in the printing and graphic arts industry who may prepare material, setup, monitor and operate equipment and machinery, analyse and evaluate information applying solutions to a defined range of problems and who 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 non-routine 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 waste 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 2.2 Substrate is added to and removed from process according to

ELEMENT	PERFORMANCE CRITERIA
	job specifications
3. Select and prepare inks and additives	3.1 Inks, dyes or additives are selected according to job specifications and end-user requirements 3.2 Quality and suitability of inks, dyes or additives are checked and appropriate action is taken 3.3 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 3.4 Correct colour and weight/volume of ink are mixed and prepared to match the requirements of the printing process and job specifications 3.5 Formulation of the ink, colour match and the approved colour are appropriately recorded 3.6 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
4. Set up machine for complex relief printing	4.1 Appropriate relief plates are selected and secured to the machine 4.2 Relief polymer plates/forme are set up and adjusted according to job specifications (platen) 4.3 Relief polymer cylinders are set up and adjusted according to job specifications (platen) 4.4 Impression is set up and adjusted according to job specifications (platen and rotary) 4.5 Inking system is set up and adjusted according to the relief process and job specifications (platen and rotary) 4.6 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 Proof is visually inspected and/or tested or laboratory testing organised according to enterprise procedures 5.4 Production does not commence without client or relevant authority approval where appropriate 5.5 Results are interpreted and adjustment changes 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, 3.1, 3.3, 3.4, 3.6, 54.2-4.6, 65.5	Recognises and interprets text to establish the job requirements from information contained within relevant instructions, procedures and specifications
Writing	3.5, 3.6, 56.4	Completes records and labels accurately and according to workplace requirements
Oral communication	5.4	Participates effectively in spoken interactions using appropriate vocabulary, questioning and listening techniques to gain approvals
Numeracy	3.4, 65.5	Uses simple mathematical calculations to select weight and volume of ink and ensure optimum output
Navigate the world of work	3.3, 3.5, 3.6, 5.2-5.4	Complies with legislative requirements and follows organisational policies and procedures relevant to own role
Interact with others	5.4	Follows accepted communication practices and protocols when seeking approval
Get the work done	1.1-1.3, 3.1-3.6, 4.1-4.6, 5.1-5.3, 5.5	- Determines priorities and sequences the steps involved in clearly defined, familiar tasks and identifies and assembles the resources required - Responds to predictable problems and implements standard or logical solutions related to the role in the 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	Reel
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EITHER:	OR
	• Sheet
Setting up and adjusting MUST include EITHER:	• Unwind and rewind reels • Webbing procedures and web control system • Splicing/joining reels • Printed web viewing devices • Folder and sheeter • Set off/marketing prevention devices OR • Feeder and delivery systems • Sheet pick-up and transportation systems • Transfer and control systems • Set off/marketing prevention devices

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICPPRN451 Set up for complex relief printing	ICPPR451C Set up for complex relief 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 ICPPRN451 Set up for complex relief printing

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Performance Evidence

Evidence of the ability to:

- set up reel or sheet-fed platen, cylinder or rotary printing machines for non-routine print jobs
- conduct a proof run and adjust settings to ensure production speeds are attained
- correctly set up a relief printing machine for complex printing on TWO occasions (if possible using different substrates and including at least two in-line processes) according to manufacturer's and job specifications, enterprise procedures and work health and safety (WHS) requirements.

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

Knowledge Evidence

Evidence of the ability to:

- identify job requirements, and production problems that could eventuate by not reading and understanding job specifications
- identify who to discuss any production problems with to
- identify importance of relief plates, why hardness of the printing plate is important, and faults that may be detected on new plates
- identify type of solvents to use on photopolymer plates
- outline the purpose of binding plates after mounting, and explain V-block mounting
- list checks to perform prior to cylinder installation
- outline importance of machine frames, and why unit slides need to be kept clean
- identify the optimum print sequence
- name the visual aid on the plate that identifies the colour of ink to be used

For reel systems only

- outline WHS precautions for installing printing cylinders in the machine
- identify precautions to ensure plate/cylinders are not damaged during installation
- outline the reel transportation system used on a web-fed machine, and the WHS precautions for when webbing up the machine
- identify implications if the web is not spiced correctly
- describe the process of determining position of the reel
- outline implications if the brake tension is not set correctly
- describe the function of the 'dancer' roller on a web machine and the function of nip rollers
- outline the reel delivery system on a web-fed machine, and the WHS precautions for when setting up the reel delivery system
- identify the function of web control in the rewind unit, and the slitter on a web machine
- identify problems attributable to a blunt knife when sheeting
- describe remedial steps if there is a possibility of ink marking in the rewind
- list the main reason for blistering on a heat set machine
- outline WHS precautions when slitting on the machine, and other operations that can be performed with in-line units
- describe the machine position for in-line processing units and \ precautions for setting up in-line processing units
- list reasons to top cut a printed product, and benefits of embossing in-line

For sheet systems only

- outline the sheet transportation system on a sheet-fed machine, and WHS precautions for setting up the sheet transportation system
- identify what causes more than one sheet to pick up in the feeder and describe why accurate feeder set up is essential
- outline the process for determining position of the sheet prior to being transferred to the printing unit
- outline the process for determining which front lays to use and the types of substrate that require additional front lays to be engaged, and why they are required
- describe the sheet delivery system on a sheet-fed machine, what causes sheets to be delivered incorrectly, and WHS precautions for removing sheets from the delivery
- describe adjustments needed if changing from lightweight to heavyweight stocks
- identify the process for determining sheet release into the delivery
- outline problems from excessive use of anti-set off spray powder
- identify what causes printed sheets to set off in the delivery
- identify how the possibility of set off in delivery can be reduced and how air blast assists sheet delivery
- outline packing required in the tympan, and the ideal condition of the tympan
- identify the process for determining printing pressure

- outline how the correct top sheet tension is achieved when fitting a new tympan, and print faults that can occur if the tympan is not tensioned correctly
- identify how to lengthen print length on this type of press, and to shorten the print length
- outline WHS concerns related to preparation of inks and additives, and details required to check inks' suitability for the printing process
- outline why it might be necessary to mix an additive into ink and any special end-use requirements that may be necessary
- outline how a spectrophotometer can be used to assess ink colour, and formula for calculating the correct quantity of ink in relief printing
- identify print faults if excessive driers are mixed into ink, and precautions to minimise waste when preparing ink
- identify the shelf life of most ink and the conditions relevant to storage of inks and additives
- list conventions for labelling mixed inks
- identify the process for setting up the printing machine and major WHS concerns
- name the order eccentric or concentric roller adjustments should be made and the width of the contact stripe between two rollers
- outline the process for determining ink duct setting, and the ideal setting
- name recommended degrees shore hardness for forme rollers
- describe types of ink drying/curing systems and how the drying unit cures ink
- state what happens if there is excessive pressure when top cutting and excessive pressure when cutting and creasing
- describe the effect of differing tooth counts on perforated products
- outline problems of solving proofing and adjustment
- outline the operation of the true inch function fitted to some machines, and problems that may cause the machine to keep stopping
- outline checks necessary prior to engaging the impression, and checks to be performed when running the machine
- describe the effect position of certain guards has on operation of the machine
- outline steps involved in operating the machine communicated to other team members
- name aids available for testing the machine proof, where testing should take place, and tests necessary for each job
- name the function of a polarisation filter in a densitometer
- describe ideal conditions for inspecting the proof
- explain why it is necessary to use visual aids on the printed substrate
- describe causes of a halo effect on the image
- outline methods to check and adjust ink colour and consistency
- describe adjustments that may cause mis-register
- describe adjustments to position the image laterally and circumferentially
- explain how changing colour sequence can effect the final colour cast
- identify causes of excessive mechanical dot gain and the difference between mechanical and optical dot gain
- describe the process for final approval before a print run

- identify machine manuals, safety and other documentation relevant to this task, where are they kept, information included in these documents, and other sources of available information.

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
- reel or sheet-fed platen, cylinder or rotary printing machine.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

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