
PRINTING - SCREEN
**Assist machine operator for screen
printing**

level:	2
credit:	15
planned review date:	March 2009
sub-field:	Printing
purpose:	People credited with this unit standard are able to: follow safety requirements for the equipment being used; check documentation and confirm requirements for the job are available; prepare substrates for screen printing; check film positives for faults; demonstrate knowledge of screens and stencils; assist with make ready and printing for single colour work to ensure that job requirements are met; and undertake post-press tasks.
entry information:	<p>Prerequisite: Unit 340, <i>Demonstrate knowledge of safe working practices in the printing and graphic pre-press industries</i>, or demonstrate equivalent knowledge and skills.</p> <p>Recommended: one of Unit 5129, <i>Reclaim screens using a pressure gun for screen printing</i>; or Unit 5130, <i>Reclaim screens using an automatic machine, and maintain cleaning equipment for screen printing</i>; Unit 5131, <i>Wash up for screen printing</i>; or demonstrate equivalent knowledge and skills.</p>
accreditation option:	Evaluation of documentation by NZQA and industry.
moderation option:	Locally based external moderation system.
special notes:	<ol style="list-style-type: none">1 All workplace practices must meet any applicable and recognised codes of practice, and documented workplace health, safety, and environmental procedures for personal, product, workplace health, safety, and environmental matters, and the obligations required under current law including the Health and Safety in Employment Act 1992, Hazardous Substances and New Organisms Act 1996, Resource Management Act 1991, Privacy Act 1993 and their subsequent amendments.

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- 2 *Workplace practices* refer to the documented procedures for the machine and/or workplace.
- 3 All production tasks in this unit standard are to be carried out under the direction of the machine operator.

Elements and Performance Criteria

element 1

Follow safety requirements for the equipment being used.

Range: machine operating manual, workplace practices.

performance criteria

- 1.1 Machine start up, shut down, and emergency procedures in the workplace are explained.
- 1.2 Hazard control measures, as circulated by the company, are described and followed.
- 1.3 Hazards or potential hazards in the workplace are identified and reported in accordance with workplace practices.

element 2

Check documentation and confirm requirements for the job are available.

performance criteria

- 2.1 Job documentation is checked to ensure that all specifications for the process being undertaken are complete and any discrepancies are reported in accordance with workplace practices.

Range: quantity, press, special instructions.
- 2.2 Components required for the job are checked against the job documentation and their availability confirmed.

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Range: may include but is not limited to – job samples or layouts, screens, stencils, film positives, ink, substrates.

2.3 Availability of equipment, as determined by the job documentation, is confirmed.

element 3

Prepare substrates for screen printing.

performance criteria

3.1 Substrates commonly used for screen printing are identified and those used in the workplace are described.

Range: may include – paper, board, plastic, metal, rubber, glass, ceramics, textiles.

3.2 Substrates used for screen printing are identified in terms of their characteristics.

Range: may include but is not limited to – grammage, calliper, bulk value, smoothness, opacity, transparency, coatings, absorbency, strength, colour, flexibility, size, dimensional stability, job suitability, grain direction, texture, surface finish, dye migration, post print migration.

3.3 Handling and storage of substrates are carried out in accordance with workplace practices.

Range: may include -
handling – clean working environment, clean hands, carrying methods, stacking, knocking up, grain direction, working side, avoidance of damage to substrate, avoidance of personal injury, static electricity, wavy edges;
storage – light, temperature, air flow control, relative humidity, age (stock rotation), ease of access.

3.4 Substrate quantity issued is confirmed against job documentation.

element 4

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Check film positives for faults.

performance criteria

4.1 Reasons for checking film positives are explained.

Range: density, emulsion side, image resolution definition, trap.

4.2 Film positives are checked for any imperfections and errors in accordance with the machine operator's instructions.

element 5

Demonstrate knowledge of screens and stencils.

performance criteria

5.1 Different kinds of screen frames are listed, and their characteristics and uses described.

Range: frames – wooden, steel, aluminium, self-stretching;
characteristics – cost, weight, strength, solvent resistance,
corrosion resistance.

5.2 Characteristics and uses of mesh are described.

Range: nylon, polyester, metal, carbon fibre, combinations of these;
characteristics – film deposit, substrate, static control, warp, weft,
mesh count, tension stability, flexibility, durability, chemical
resistance.

5.3 Methods of stretching mesh to achieve the required tension are described.

Range: manual, mechanical, pneumatic.

5.4 Factors affecting the way mesh is stretched are explained.

Range: mesh material, mesh count, tension control, angle.

5.5 Stencil systems are described, and the work each system is most suited to explained.

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Range: capillary, indirect, direct.

- 5.6 The reasons for 'spotting' and 'blocking out' the stencil, and taping the inside edges are explained.

Range: water based inks, solvent based inks.

element 6

Assist with make ready and printing tasks for single colour printing to ensure that job requirements are met.

performance criteria

- 6.1 Screens are prepared and set for single colour printing in accordance with machine operator's instructions.

Range: may include but is not limited to – screen size, mesh tension, mesh count, pre-treatment, degreasing, touching up, position, masking out table area.

- 6.2 Squeegee (and scraper if available) are prepared and placed in the press in accordance with machine operator's instructions.

- 6.3 Machine start up and shut down procedures are followed during the print run in accordance with the machine operator's instructions.

- 6.4 Drying system most appropriate for the job is selected and set in accordance with machine operator's instructions.

Range: any of the following as available in the workplace – rack, wicket, jet air, drying tunnel, ultra-violet (UV), infra-red (IR).

- 6.5 First prints are taken in accordance with machine operator's instructions.

Range: ink up;
confirm against job sample or layout;
check against job specifications, film positives, customer copy.

- 6.6 Prints are passed for production run, and approval to run obtained, in accordance with machine operator's instructions.

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Range: check against – job specifications, film positive, customer copy; check for – position, colour, stencil, pressures, angles, quality of print, off contact distance, snap off, length of stroke, speed, adhesion, cure.

6.7 Counter is set ready for commencement of run.

6.8 Ink is monitored and adjusted throughout the print run in accordance with the machine operator's instructions.

Range: supply, viscosity, colour.

6.9 Position is maintained throughout the print run to meet the requirements of the job specifications.

6.10 Prints are dried, checks are made during the print run, and any faults are reported to the machine operator.

Range: faults caused by incorrect drying time, temperature and speed include – set off, block, ink adhesion failure, curling, substrate distortion, colour change.

6.11 Problems and faults encountered during the print run are rectified or reported to the machine operator in accordance with workplace practices.

Range: includes but is not limited to – smudging, colour variation, position, loss of detail, drying of ink in the screen, dust, set-off, change of viscosity, legibility, clarity, static, ink reticulation, orange peel, humidity, stencil breakdown, pin holes, substrate movement.

element 7

Undertake post-press tasks.

performance criteria

7.1 Quantity printed is checked against job documentation and confirmed with the machine operator before wash up is commenced.

7.2 Correct shut down sequence is followed in accordance with the machine operator's instructions.

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- 7.3 Job documentation is completed in accordance with workplace practices.
- 7.4 Post-press tasks are carried out as required by the job specifications and in accordance with workplace practices.
- 7.5 Waste control procedures are followed to meet workplace practices, local body and product requirements.

Range: recyclable waste, non-recyclable waste, security waste.

Comments on this unit standard

Please contact Competenz info@competenz.org.nz if you wish to suggest changes to the content of this unit standard.

Please Note

Providers must be accredited by the Qualifications Authority or a delegated inter-institutional body before they can register credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be accredited by the Qualifications Authority before they can register credits from assessment against unit standards.

Accredited providers and Industry Training Organisations assessing against unit standards must engage with the moderation system that applies to those standards.

Accreditation requirements and an outline of the moderation system that applies to this standard are outlined in the Accreditation and Moderation Action Plan (AMAP). The AMAP also includes useful information about special requirements for providers wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

This unit standard is covered by AMAP 0005 which can be accessed at <http://www.nzqa.govt.nz/site/framework/search.html>.