



Stitching Operator's Guide to
National Certification in
Stitcher Operating



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Demonstrating Your Knowledge as an Experienced Technical Professional

Operating saddle stitching equipment in a competitive and high-tech environment requires superior knowledge and skills. Certification by the National Council for Print Industry Certifications signifies a comprehensive knowledge of the stitching process. By passing this examination you will become one of a small group of certified saddle stitching operators in the printing industry.

Certification reinforces your high level of knowledge to your employer and its customers. Further, it helps customers trust your company's ability to deliver on its commitments. Finally, the presence of certified operators underscores that our industry is staffed by world-class technical professionals.

This guide will help you to prepare for the Saddle Stitch Binding Certification Examination. By achieving certification, you will take a step to advance your career and be confident that your knowledge compares with the industry's most expert operators.



About the National Council for Print Industry Certifications

The National Council is a nonprofit skill standards and certifying organization serving the graphic communications industry. It was founded in 1995 following the completion of industry skill standards for electronic imaging, press operating (flexographic, sheetfed and web offset), and finishing and distribution. Over the years it has certified the knowledge of hundreds of individuals. The organization is located in metropolitan Milwaukee and shares resources with the Printing Industries of America affiliate, Great Lakes Graphics Association.

Skill Standards and Testing

Knowledge-based examinations produced by the National Council are based on industry skill standards (i.e., what an operator should know and be able to do), written for the expert level of performance. The original skill standards were developed by a collaborative group of concerned leaders from a wide range of backgrounds and experience from industry management, associations, education, and labor, under a matching grant from the United States Department of Education, awarded to the Graphic Arts Technical Foundation (now Printing Industries of America). Recently, the skills standards were updated to ensure that the certification exams are relevant to current industry trends and practices. The certification exams measure the candidate's knowledge against these national skill standards.

Testing Procedure and Requirements

The certification test is a challenging online test with a three-hour maximum time limit. It consists of about 210 multiple-choice questions. Each multiple-choice question contains four or five answers from which to choose, with one single "best" possible answer. Examination content will contain questions that will assess core skills (math, measurement, and communication skills) and the operator's knowledge of stitching operations.

During the online test you have the flexibility of moving forward to the next question and backward to the previous question, as well as changing answers up until the time you click the “submit” button.

After clicking the “submit” button, you will immediately see the results of the test. Those achieving a score of 80% or better will be shown to have “passed” the certification test. Those achieving a score below 80% will be shown to have “failed” to achieve the necessary cutoff score. Also, you will be able to review the questions that were missed. An email will also be automatically generated and sent to the designated company representative containing only the test result (but not the questions missed).

In order to maintain the necessary control over the test-taking environment and computer systems used to take the test, the National Council has established strict requirements governing how the test must be taken.

You must complete the test:

- At the company site during normal business hours
- Without assistance from individuals or reference material. This is not an “open-book” test. Paper tablets, phones, electronic devices, books, and publications may not be brought into the testing area. Handheld calculators are permitted.
- Using a computer in an office area as determined by your management sponsor. To the extent possible the area should be free from interruptions.
- Within the three-hour time limit. There is no opportunity to “pause” the test and complete it at a later time. Any questions not answered will be deemed incorrect.

At no time during the test is it permissible to copy questions and/or answers in any manner or to discuss them with coworkers. Please help us protect the integrity of the test.

Achieving Certification

National Council awards certification upon passing the examination with a score of 80% or better and meeting the experience requirements. If you achieve certification you will receive a certificate and pocket card indicating National Council Certified Operator (NCCO) certification effective for a five-year period, a colorful embroidered baseball cap, and a personal letter from the National Council director.

Retesting and Appeals

If you do not pass the certification exam, you may apply to take the test again after 180 days.

If you are declared ineligible for certification testing or you are unsuccessful in passing the examination and you feel the decision or process was unfair or incorrect, you have the right to contact the National Council, explain the reasons for your dissatisfaction, and ask for a review of your situation. The National Council will either explain why it is maintaining its decision, correct the situation as needed, or forward credible concerns to the Appeals Committee. If your concerns are forwarded to the Appeals Committee, the National Council has 60 days to convene the Committee, have it issue a ruling, and respond to you.

Confidentiality

You will see your score and be alerted whether you have achieved certification immediately upon clicking the “submit” button at the conclusion of the test. The National Council will not release your test score to anyone but you and the company manager who co-signed the registration form. If you submitted the form and paid the fee yourself, the test score will only be released to you. The company individual (if one is named on the registration form) will receive an email with similar information

shortly after the test has ended.

The names of all individuals who achieve certification will be added to the National Council website, unless you request not to be listed.

Under no circumstances will the National Council share examination questions or answers with candidates or their company management.

Recommended Test-Taking Strategies

Here are some tips that may help you achieve a higher score on the test:

- ✓ Prepare for the test by reviewing the sample questions, reading the recommended material, and ensuring that you know the definitions of terms used in the test.
- ✓ Get a reasonable amount of sleep the night before your test.
- ✓ Eat a light meal before the test. Having food in your stomach will give you energy and help you focus.
- ✓ The three-hour time limit means that it's crucial to budget your time wisely. Don't spend too much time on any one question. Since there are about 180 questions, you can take an average of one minute per question and still finish on time. That means you should have answered at least 60 questions after the first hour and 120 questions after the second hour. The testing software will constantly show you how much time you have left.
- ✓ Read each question carefully before you look at the answers. Misreading questions is the cause for a significant number of wrong answers.
- ✓ Come up with the answer in your head before looking at the possible answers, this way the choices given on the test won't throw you off or trick you.
- ✓ Carefully read all of the choices and eliminate answers you know aren't right.
- ✓ If necessary, take an educated guess and select an answer. Failing to answer a question is the same as selecting the wrong answer, so guessing is better than ignoring a question.
- ✓ Don't keep changing your answer; usually your first choice is the right one, unless you misread the question.

Recommended Preparation and Reading

We suggest that you discuss the topics and terms on the preceding pages—along with the sample questions which follow—with others in your pressroom, double-checking your knowledge on the variety of subjects you will encounter in the examination.

You can also prepare by reviewing the following books, which contain more than 80% of the information covered in the certification test. Both books are available for purchase from Printing Industries of America using the webpage links below, or by calling 1-800-910-4283 x770.

- [Bindery Training Curriculum](#) is an introductory program that provides a foundation of basic terms, principles, and operating procedures on saddle stitching, as well as cutting, folding, and adhesive binding. The curriculum is designed to be taught by an instructor.
- [At the Finishing Line: A Primer for New Bindery Workers](#) is a good introductory text on the subjects of cutting, folding, saddle stitching, perfect binding, case binding, and mechanical binding.

Your use of the Printing Industries of America materials is, of course, not a requirement for taking the examination. Another way of preparing for the examination is to discuss the terms, topics, and sample questions with your coworkers. And you may indeed wish to take the examination based only upon your years of experience in producing process color work, reviewing the topics, terms, and sample questions on your own.

Topics Covered in the Saddle Stitch Certification Examination

Here is a lengthy list of the topics covered on the test. In many cases, a topic will be addressed by multiple questions.

Safety

- Safely handling a knife
- Purpose and procedures of lockout/tagout
- Safe equipment operation
- Use of a fire extinguisher
- Use of personal protective equipment
- How to read an MSDS

Overview of Stitching

- Benefits and limitations of saddle stitching
- Choosing appropriate wire gauges
- Understanding folio laps
- Paper grain, weight, and terminology
- Special requirements of high-page count signatures

Stitching Machine Components

- Function of stitching equipment components
- Types of feeders
- Setting register stops
- Quality control devices on stitcher
- Function of stitching head components
- Transferring books from gathering chain to trimmer
- Purpose of additional knives
- Symptoms of poor trimmer timing
- Importance of setting trimmer thickness
- Devices that can be added to three-knife trimmer
- Sequence of stacked delivery system
- Function of delivery tables
- Purpose and method of compensating stackers
- Auxiliary equipment depending on job requirements

Stitcher Makeready

- Use and composition of dummy book
- Manner of transferring product to trimmer infeed
- Method of verifying correct product size
- Setting book transport device
- Steps in trimmer makeready
- Steps in setting caliper and verification of setting
- Setting up transfer area and position
- Adjusting stitch location
- Stitcher head makeready
- Setting counter stacker
- Use and setup of reverse lap grippers
- Setting baskets on compensating counting stacker
- Dealing with lightweight product in stacker

Pocket Makeready

- Setting up pockets
- Setting transfer grippers for pick up laps
- Use of vacuum and grippers on B and C drums depending on signature type and folio lap
- Handling signatures without pick up lap
- Positioning vacuum suckers based on signature configuration
- Purpose of tilting register/backstops
- Setting up for reverse lap signature
- Setting backstop based on folio lap
- Setting up card feeder, including vacuum assist
- Making adjustment to correct card drop
- Setting up cover feeder
- Setting up scoring wheel for cover feeder
- Ways to minimize cover cracking

Maintenance

- Sequence of steps when changing and setting knives
- Function and use of lubricants
- Advantages of chains and sprockets compared to gears and cams
- Activities, reasons, and frequency of preventative maintenance
- Angle of knives in trimmer
- When to replace items on stitcher head
- Preparation before burning a belt
- Operator-performed oil pump maintenance
- Likely cause of low vacuum

Troubleshooting Saddle Stitching Problems

- Indications that knives need changed
- Adjustments needed to correct incomplete or incorrect trimming
- Causes of trimmer jams
- Setting trimmer stroke
- Result of incorrect hold-down brush setting in trimmer
- Causes of marking during trimming and exiting the trimmer
- Symptoms of incorrect trimmer clamp tension
- Symptoms of worn or damaged belts
- Cause of rip on backbone of form by grippers on main drum
- Correction required if variation in where grippers grab the cover and it misses opener gripper
- Cause of ball of twisted wire backing up from stitcher head

Topics Covered in the Saddle Stitch Certification Examination (Cont.)

Troubleshooting Saddle Stitching Problems (Cont...)

- Troubleshooting quality issues with stitches
- Result of poorly wound wire or kink in wire
- Symptoms of worn former
- Cause of signatures dropping on back side of gathering chain
- Causes of pocket misfeeds
- Remedies to eliminate skipped signatures/covers or feeding multiple signatures/covers
- Solutions for correcting crooked folded covers
- Troubleshooting gripper failure or inconsistency
- Corrections required when signatures pulled from pocket don't reach stops

- Solutions for eliminating marking during saddle stitching
- Effect of too much or too little push
- When draw or flare normally occurs
- Cause of incorrect caliper book rejections

Conceptual Core Skills

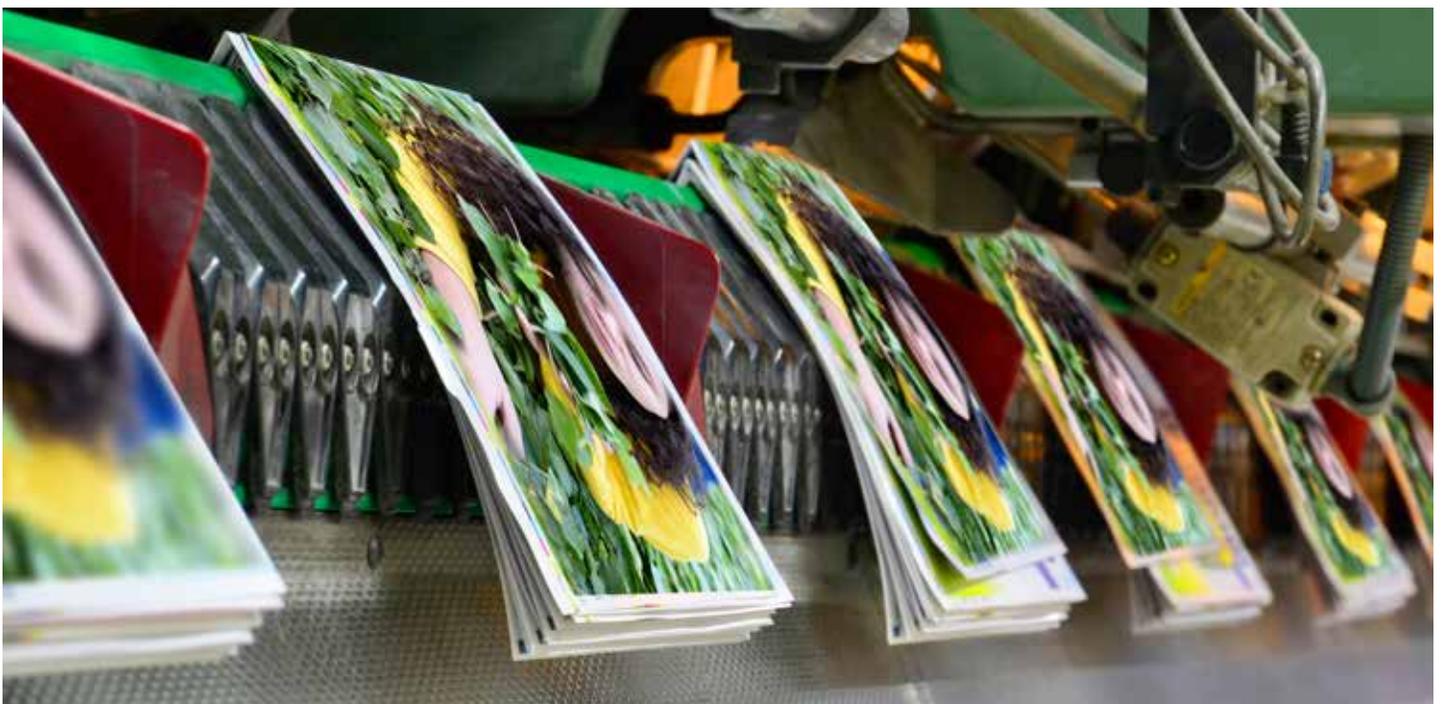
- Sequence of steps in graphic arts production process
- Calculating percentages
- Calculating product waste for known run length and percentage of allowable waste
- Converting inches to ems
- Converting numbers to fractions
- Calculating stitching run time for known run speed and net hourly production
- Calculating number of boxes for known order size and box capacity
- Best practice is writing effective emails or memos
- Elements of job ticket
- How to analyze directions
- Best practices in training helpers



Terms You Should Be Familiar With

The certification test covers a variety of topics that a master operator needs to understand. As a result, there are many acronyms, terms, and phrases referred to in the test. Here is a list of about 75 of them. While this isn't an exhaustive list, you would be wise to know what each entry means before taking the test.

B drum	Former	Preventative maintenance
Batch counting	Gathering chain	Reverse lap
Bevel gear	Gears and cams	Saddle stitching
Bleed	Gripper	Scoring
Blocking	Gusseting	Sheet guide
Blow-down air	Head trim	Short lap
Burning a belt	Hickey	Side knife
C drum	High folio lap	Signature
C1S/C2S	Hold-down brush	Skew
Caliper	Imposition	Slurring
Card feeder	Inkjetting	Stacking bin/forks
Carrying lugs	Insert Station	Stitcher head
Chain pin	Interlock	Tension
Chains and sprockets	Job ticket	Thickness calibration
Clincher	Lap variation	Timing
Compensating counter stacker	Lockout/Tagout	Transfer Area
Compensating stacker	Long book detector	Transfer drum
Counter stacker	Long lap	Trim monitor
Cover feeder	Low folio lap	Trim Size
Crossover	Makeready	Trimmer belt
Cutter	Marking	Trimmer infeed
DBA	MSDS	Trimmer timing
Driver	Oblique sheet	Tuck
Dummy book	Offsetting	Tucker blade
Face knife	Pagination	Vacuum release point
Face trim	Paper grain	V-folding belt
Folio	Perfect binding	Wire gauge
Foot trim	Pocket	



Sample Questions

Questions in this examination were developed and validated by experienced, lead-position sheetfed offset press operators across the United States. Each question is related to a skill standard.

The questions below may or may not appear in the examination you will take. However, they provide an example of format and style and relate to the subject matter covered in the examinations. Answers are shown at the end of the sample question section.

- 1) Which wire gauge is best suited for a thick book?
 - a. 22 gauge
 - b. 25 gauge
 - c. 27 gauge
 - d. 28 gauge

- 2) Grain of paper is important to stitcher operators because it impacts:
 - a. Quality of folding
 - b. Ease of trimming
 - c. Speed of stitching
 - d. Delivery of finished product

- 3) Over lubrication of the gathering chain could cause:
 - a. Inaccurate caliper readings
 - b. Markings on the cover
 - c. Oil streaks on the product
 - d. Signatures failing on the floor

- 4) Which quality control device detects squareness of a book and rejects it if it is incorrect?
 - a. Caliper detector
 - b. Missing stitch detector
 - c. Oblique sheet detector
 - d. Trim detector

- 5) How does product transfer off of the gathering chain?
 - a. Tucker blade
 - b. Chain rail
 - c. Chain feeders
 - d. Stops
 - e. B & C

- 6) Which of the following devices cannot be added to a three-knife trimmer?:
 - a. Small book attachment
 - b. Multi-hole punch
 - c. Sixth and seventh knife
 - d. Diecutter

- 7) When setting product transfer from gathering chain to trimmer infeed, the product should transfer in which manner?
 - a. Determined by head and foot trim
 - b. Center of infeed
 - c. Favor foot trim off
 - d. Favor head trim off

- 8) What should be adjusted if stitches are not on the spine of a book?
- Set the compression
 - Align the clinchers
 - Position the stitching heads
 - Adjust the guides, hold downs, and rollers
- 9) When setting the pocket for a 16-page section with a 3/8-inch high folio lap, it is better to run with the:
- Gripper opening only on the B and C drum
 - Vacuum on the B and C drum
 - Gripper on the B drum and vacuum on the C drum
 - Vacuum on the B drum and gripper on the C drum
- 10) If a card is dropping too late, which of the following should be done?:
- Retime pocket to the chain
 - Change vacuum release timing
 - Increase machine cycle speed
 - Alter the saddle chain position
- 11) When rebuilding stitcher heads, the driver should be replaced if it::
- Is dirty
 - Has not been replaced previously
 - Has broken or chipped edges
 - Is at the manufacturer interval for replacement
- 12) When checking irregular face trim, which should be checked first?
- Trimmer belts
 - Book reaching trimmer face stops
 - Trimmer brushes
 - Infeed timing
- 13) You are running at 14,000 books per hour and netting 10,800. Your run length is 100,000. What is your estimated time of completion? :
- 14 hours
 - 12 hours
 - 9 hours
 - 7 hours
- 14) Assuming that lockout is impossible, when is it permissible to bypass OSHA's tagout procedure?
- When you have warned all other employees verbally
 - When the job will take five minutes or less
 - When you are working alone
 - It is never permissible to bypass the tagout procedure
- 15) At what sound level is hearing protection required?
- 50 dBA
 - 85 dBA
 - 110 dBA
 - 120 dBA

Sample Test Answers:

1(a); 2(a); 3(c); 4(d); 5(a); 6(d); 7(b); 8(d); 9(a); 10(a); 11(c); 12(b); 13(c); 14(d); 15(b)

If you missed more than a few questions, your likelihood of passing the certification test will be improved if you spend time preparing for the test, as outlined in the preceding sections.

More Information

If you have questions about the certification process or test, please contact NCPIC at:

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