National Institute for Metalworking Skills, Inc.

Credentialing Achievement Record

Press Brake
Level II
Operate CNC Drive

National Institute for Metalworking Skills
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PRESS BRAKE CREDENTIALING PROGRAM

LEVEL II CREDENTIALING ACHIEVEMENT RECORD (CAR)

and

Official Performance *CHECKLISTs* **(Skill Checks)**

✎ Please print

NAME:	**Reg. No.**	**Job Title:**

Site Name:	**Site No.**

STATUS:	***Non-Completer*** ❑	***Candidate has Successfully Completed all NIMS Performance Requirements in the Following Credentialing Area:***
	Reason:	Duty Cluster Name: **OPERATE CNC DRIVE PRESS BRAKE** Date Completed:_____

Directions

This *Credentialing Achievement Record* (*CAR*) is the official training and performance document for the above named NIMS credentialing candidate. The CAR is used by the trainer/supervisor and candidate as a record (or logbook) of individual on-the-job performance. The CAR is the *vehicle* that will allow eligible candidates to take the NIMS written credentialing examination(s). Supervisors, trainers, and candidates should take care of this record and be sure that it is accurate, kept up to date, filled out correctly, and properly stored. All information recorded in the *CAR* should be considered **CONFIDENTIAL**.

Candidates may select as many credentialing Duty Clusters as applicable to the facility or appropriate to the job. There are separate CAR booklets for each credentialing Duty Cluster. The CAR opens with list of Critical Work Activities (or experience statements) that must be acknowledged and documented. However, actual performance is assessed two ways: **1**) by fulfilling these general experience and historical statements and **2**) by an examiner administering *Skill Checks* (or performance assessments). Three successful Skill Check attempts are required. Skill Checks are clearly marked with the title - **CAR SKILL CHECK**. Candidate performance is documented by a ☑ on the Examiner's *CHECKLIST*. All Skill Checks must be co-signed and dated by the trainer/supervisor and candidate. Work Activity sign-offs must be co-initialed by the trainer/supervisor or manager and candidate then dated. If a particular Skill Check step or standard does not apply at your facility, check-off the applicable ***NA*** box and continue. Skill Checks may require the candidate to perform work a bit differently than your normal procedure or learn how to do something that may not be part of their typical day-to-day responsibilities. However, you may only check-off ***NA*** if the process-standard does not apply because the equipment or tooling is not available or the metalforming process itself does not require this activity or competency.

For additional information about administering *CAR* Skill Checks, see the CAR Administration Guide or consult with your facility Credentialing Coordinator.

PRESS BRAKE CREDENTIALING PROGRAM

*LEVEL **II** CREDENTIALING **A**CHIEVEMENT **R**ECORD* **(CAR)**

Operate a CNC Drive Press Brake

Level II – Electrical or Hydraulic Brake with a CNC Controlled Ram and Gagging

Critical Work Activities & Experience	Date Completed	Supervisor Initials	Trainer Initials	Trainee Initials
All of the following statements must be completed prior to submission of the CAR		and /or		
Operate CNC Controlled Press Brake				
Candidate has successfully completed all required safety training/courses as specified by the work facility or required by OHSA. Candidate has working knowledge of applicable OHSA and ISO regulations and American National Standards (B-1121)				
Candidate has successfully completed the probationary period for this position (job title) as specified by the work facility.				
Candidate has met the attendance policy of the facility over the last 12 consecutive months.				
Candidate has no company documented safety violations within the last 12 consecutive months.				
Candidate has no reported incidents of non-conforming parts contaminating quality parts over the last three (3) consecutive months.				
Candidate has demonstrated the ability to maintain a clean and orderly work area in compliance with facility housekeeping policies and has no reported violations for a period of three (3) consecutive months.				
Candidate demonstrated the ability to recognize and explain the type of press brake and its function (including controls, electro-mechanical devices, drive mechanisms, tooling and Quick-Change/Amanda-type tooling, etc.).				
Candidate has demonstrated working knowledge of material/part conformance standards and/or basic SPC recording techniques.				

Critical Work Activities & Experience	Date Completed	Supervisor Initials	Trainer Initials	Trainee Initials
Given specific duties to perform, instructions, and necessary written documentation, candidate has demonstrated the ability to locate, read and use information to execute and control a press brake process to defined quality standards.				
Candidate has demonstrated basic abilities in decision making and problem solving.				
Candidate has demonstrated appropriate social behaviors and communicative skills with customers, supervisors, teams leaders, and/or co-workers.				
Candidate has worked cooperatively with others and has contributed to company efforts with ideas, suggestions, and/or feedback to improve a process, resolve a problem, or improvise a new method.				
Candidate can recognize appropriate codes of conduct and values in the workplace and has exhibited honesty, integrity, and responsibility when doing work and when communicating with others.				
Candidate has demonstrated competency interpreting blueprints and/or technical drawings (Standard and GDT orthographics, geometric dimensioning and tolerancing, control charts and graphs, etc.)				
Candidate has applied knowledge of precision measuring and transfer instruments and has used those devices to confirm work piece compliance (as per blueprints, technical drawings and/or reference part).				
Candidate can use precision tools and instruments for surface plate work (i.e., angle plates, tool blocks, transfer gages, height gages) and determine a part's compliance on selected dimensions.				
Candidate can recognize common materials and their metallurgical properties (ferrous and non-ferrous, magnetic, and ductile materials). Candidate can predict material formability based on its appearance, hardness, treatment, size, and call-out print specifications.				

NOTE: Further details and specifics regarding worker competencies, see Duties & Standards for Metalworking - Press Brake, Level II & III, National Institute for Metalworking Skills/Precision Metalforming Association

Skill Checks begin on next page

NIMS PRESS BRAKE SKILL CHECK
Level II

Candidate:	Date: 199
Examiner:	(For examiner use only) Results: Pass ❑ *Yes* Date Started: Date Ended:

Work Activity — Operate a CNC (Electrical/Hydraulic) Press Brake

Performance Conditions

Setting: Shop, bench, and QC area(s). Given a setup for production that has already been verified for safety and programmed process, the candidate will: perform pre-production planning, activate machine (CNC controlled drive), cycle and inspect sample parts, operate the press brake (make parts), monitor operations, and inspect parts (in-process) for quality control (two frequency or intermediate inspections required). Candidate will shut down equipment or hand-off machine to setup or for continued in-kind operations. Three (3) successful Skill Check attempts, making at least two (2) different parts, are required for on-the-job performance recognition.

☞ To take these Skill Checks, the metal piece-parts to be made must have (at minimum) the following attributes and characteristics:

- At least 6 bends with
- 2 different or opposing angles and
- 2 or more different flange lengths.

Safety Equipment:

- *P*ersonal *P*rotection *E*quipment/*C*lothing (*PPE/PPC*)

Tools, Equipment and Materials:

- Calculator
- CNC Press Brake
- Conversion Charts/Tables
- Housekeeping Supplies
- Pen/Pencil
- Pre-Cut Raw Material
- Shop Wipes
- Tool Lubricants
- QC and Production Documentation

Measuring Instruments:

- Calipers
- Checking Gages
- Combination Square (or Square)
- Fixture Gages
- Micrometer
- Protractor
- Scales/Tape Measure
- SPC Input (if applicable)

Attainment Standards

1. 100% of all applicable procedural steps and process standards, without assistance and within company-specific time limits, following all safety, ISO, equipment manufacturer, and plant-specific practices and procedures.
2. 100% conformance with all NIMS final product standards, company production expectations, and all quality control criteria/SPC and/or customer requirements.

Trainee Directions

The skill checks you are about to take are hands-on assessments that are part of the credentialing process. These assessments will enable you to verify your experience and demonstrate your competency by completing practical job tasks. The Skill Check will cover areas that you should know and problems you should be able to solve. If you need any additional materials or experience any problems with equipment during the assessment, notify the examiner immediately.

The above referenced tools, equipment, materials and supplies may be used to Operate a CNC Press Brake (either electrical or hydraulic). All safety and plant-specific procedures must be followed. The examiner will evaluate both the process used and final result of the process. Process steps should be performed in the sequence, and all process elements must meet the standards for successful completion.

Examiner Instructions

For successful completion of this Skill Check, the candidate must demonstrate the ability to successfully complete the work activity under controlled assessment conditions. All work must be completed to standard.

Before administering the Skill Check:

- Read/review the CAR *Administration Guide* developed for the program.
- Ensure that you have a copy of this Skill Check for the candidate to use while he/she is working. Be sure all applicable equipment and supplies are available.

Do not provide assistance during the Skill Check. Monitor work in-progress and evaluate for ***process standard***. Assess the completed work for conformance with **final product** criteria. Mark ***NA*** if a *process*-product is not applicable. To successfully complete each Skill Check, all boxes must be marked **YES** or ***NA***.

Stop the Skill Check immediately if the candidate violates a safety/environmental regulation or procedure or if there is any possibility of personal injury or damage to equipment.

Before assessment, the examiner may discuss appropriate safety requirements and loss potential issues (*i.e., Lock and Tag/Zero Energy, HAZMAT, personal protection equipment, pinch points, compressed air/fluids, high or residual voltage, E-Stops, OHSA-1910 Loss Potential, etc.).*

☞ **EXAMINER:** **Read aloud the *Skill Check Script* from the CAR *Administration Guide*** (*verbatim*).

When the candidate indicates that he/she has completed the Skill Check or when your maximum time allowed has run out, assess Final Product Standards and follow the closing procedures outlined in the *Administration Guide.*

Checklist

Scoring Procedures: Observe the candidate's performance for each Process Step and mark the *CHECKLIST* whether or not the *Process*-Product Standards were attained (*Do not rely on your memory*). Process-Product Standards are to be marked ☑ as each element is competed.

(C) ***Critical***. Failure to meet the standard will result in immediate Skill Check termination.

Note: The evaluator will terminate the assessment and schedule the individual for further training.

Examiner's CHECKLIST - SKILL CHECK # 1

Operate an Electrical or Hydraulic Press Brake with a CNC Controlled RAM and Gagging

Process Steps	*Process-Product* Standards			
DATE STARTED:	**PART NUMBER USED:**	**Yes**	**No**	***NA***
A - PRE-PRODUCTION JOB PLANNING				
1. Prepare for Production Run	• Prints, technical drawings, and/or controlling documents obtained/on screen and matched to setup specifications. **C**	❑	❑	❑
	• Work or job order matched print/drawing or sample number.	❑	❑	❑
	• Computer control panel active, programmed, and set to correct mode of operation.	❑	❑	❑
	• Raw material staged at job site.	❑	❑	❑
	• Material handling equipment/tools organized at job site.	❑	❑	❑
	• Part container(s) in correct position.	❑	❑	❑
	• Inspection plan acknowledged for dimensional controls/tolerances and frequency of in-process part inspections.	❑	❑	❑
	• Calibrated measuring instruments, devices, and gages at workstation and organized on bench (Tags current).	❑	❑	❑
B - PRODUCTION OPERATIONS & PROCESS CONTROL				
2. Start/Re-Start Machine and Make Samples/First Piece-Part	• Workstation organized and cleared of debris and obstructions.	❑	❑	❑
	• Tool assembly clear of objects and obstructions. **C**	❑	❑	❑
	• Machine is "On" and will cycle (computer actuated ram will travel).	❑	❑	❑
	• Safety devices, sensors, and guards operational and verified for function.	❑	❑	❑
	• Material fed and machine cycled.	❑	❑	❑
	• No alarms, unusual noise, odors, smoke, or excessive vibrations were present.	❑	❑	❑
	• Samples or first article bent according to pre-programmed setup sequence/simulation.	❑	❑	❑
	• Bending positions and sequence did not crash part/material into machine *(Yes = did **not** occur).*	❑	❑	❑
	• Samples or piece-part safely removed without damaging part or tooling.	❑	❑	❑

Process Steps	*Process-Product* Standards	Yes	No	*NA*
	B - PRODUCTION OPERATIONS & PROCESS CONTROL *Continued*			
3. Inspect Samples/First Piece-Part for Conformance	• Samples/piece-part visually inspected for conformity ("part looks like print").	❑	❑	❑
	• Cosmetic attributes and finish met quality standards and/or customer requirements. **C**	❑	❑	❑
	• All angles/radii conformed to print specifications and tolerances. **C**	❑	❑	❑
	• Flange lengths in conformance with dimensional specifications.	❑	❑	❑
	• Flange squareness, perpendicularly, and/or parallelism conformed to dimensional standards and part characteristics. **C**	❑	❑	❑
	• Other critical dimensions in-conformance with quality control standards (i.e., OAL, hole-to-hole, height, setbacks, etc.). **C**	❑	❑	❑
	• Demonstrated ability using and reading hand-held precision measuring instruments.	❑	❑	❑
	• All features conformed to print, SPC, and/or customer requirements. **C**	❑	❑	❑
	• Completed/input all inspection, quality control documentation accurately and legibly (including sign-offs).	❑	❑	❑
	• Press brake and process control devices are "production ready" (No alarms present).	❑	❑	❑
4. Operate CNC Press Brake and Make Piece-Parts ***(Candidate must operate machine and make piece-parts, on an on going basis up to the2nd in-process part inspection)***	• Arms, hands, and fingers kept clear of ram and all secondary pinch points. **C**	❑	❑	❑
	• Material continuously fed flat and against all stops. **C**	❑	❑	❑
	• No back or forward bending of part/material (Demonstrated correct material handling, feed and follow through techniques).	❑	❑	❑
	• Adhered to verified bending direction and sequence (no crashes). **C**	❑	❑	❑
	• No excessive vibration, squealing, smoke, or alarms were present *(Yes = these did **not** occur).*	❑	❑	❑
	• Tooling or press brake was not damaged during operations *(Yes = no damage occurred).*	❑	❑	❑
	• Piece-parts carefully removed from die/tool area after completion of bending sequence.	❑	❑	❑
	• Quality finished piece-parts placed (or stacked) in proper holder/container or pallet.	❑	❑	❑

Process Steps	*Process-Product* Standards	Yes	No	*NA*
	B - PRODUCTION OPERATIONS & PROCESS CONTROL *Continued*			
Operate Press Brake and Make Piece-Parts *Continued*	• Piece-parts correctly packed/stacked (No damage to finished parts occurred during operations or transfer).	❑	❑	❑
	• Piece-parts or finished container tagged for traceability.	❑	❑	❑
	• No bad/defective piece-parts mixed with good parts *(Yes = no cross-contamination occurred)*. **C**	❑	❑	❑
	• Percentage of scrap within acceptable standards.	❑	❑	❑
	• Pro-rated production rate (e.g., "parts made *per* minute") met or exceeded process standards.	❑	❑	❑
	• Quality parts pressed on a continuous basis up to the first in-process QC inspection.	❑	❑	❑
	• Work area kept clean and organized during run.	❑	❑	❑
5. Inspect Parts Using Hand-Held Precision Measurement Devices ☝ *(First Required In-Process Part Inspection)*	• Executed 1st in-process part inspection in accordance with inspection/quality plan.	❑	❑	❑
	• Bend sequence conformed to part characteristics ("part still looks like the print").	❑	❑	❑
	• Surface finish not scratched or damaged	❑	❑	❑
	• Cosmetic attributes met quality specifications (features conformed to print requirements).	❑	❑	❑
	• Part angles/radii conformed to print specifications. **C**	❑	❑	❑
	• Flange lengths in conformance with dimensional specifications. **C**	❑	❑	❑
	• Flange squareness, perpendicularly, and/or parallelism conformed to dimensional standards and part characteristics. **C**	❑	❑	❑
	• Other critical dimensions in-conformance with quality control standards (i.e., OAL, hole-to-hole, height, setback, etc.). **C**	❑	❑	❑
	• Demonstrated ability using and reading hand-held precision measuring instruments.	❑	❑	❑
	• Completed/input in-process inspection, quality control/SPC data accurately and legibly.	❑	❑	❑
	• Piece-parts inspected met quality and production standards (process adjusted or edited as needed).	❑	❑	❑
	• No cross contamination of out-of spec/defective parts with finished quality parts *(Yes = this did **not** occur).*	❑	❑	❑

Process Steps	*Process-Product* Standards	Yes	No	*NA*
	B - PRODUCTION OPERATIONS & PROCESS CONTROL *Continued*			
6. Continue Production Run and Make Piece-Parts	• Arms, hands, and fingers kept clear of ram and all secondary pinch points. **C**	❑	❑	❑
	• Material continuously fed flat and against all stops. **C**	❑	❑	❑
	• Demonstrated correct feed and follow through (*No back or forward bending of part/material).*	❑	❑	❑
	• Adhered to verified bending direction and sequence *(no crashes occurred).*	❑	❑	❑
	• No excessive vibration, squealing, smoke, or alarms present *(Yes = did **not** occur).*	❑	❑	❑
	• Tooling, tool assembly, or press brake was not damaged during operations.	❑	❑	❑
	• Piece-parts carefully removed from die/tool area after completion of bending sequence.	❑	❑	❑
	• Quality finished piece-parts placed (or stacked) in proper holder/container or pallet.	❑	❑	❑
	• Piece-parts correctly packed *(No damage to finished parts during operations or transfer).*	❑	❑	❑
	• Piece-parts/finished container tagged for traceability.	❑	❑	❑
	• No bad/defective piece-parts mixed with good parts *(Yes = no cross-contamination occurred).*	❑	❑	❑
	• Percentage of scrap (or rework) within acceptable standards.	❑	❑	❑
	• Pro-rated production rate (e.g., "parts made *per* minute") met or exceeded process standards.	❑	❑	❑
	• Work area kept clean and organized during run.	❑	❑	❑
	• Quality parts pressed on a continuous basis up to the 2nd scheduled in-process QC inspection.	❑	❑	❑
	• Floor clean, dry and free of debris.	❑	❑	❑
7. Inspect Parts Using Hand-Held Precision Measurement Devices ✌ *(Second Required In-Process Part Inspection)*	• Executed 2nd in-process part inspection in accordance with inspection/quality plan.	❑	❑	❑
	• Bend sequence conformed to part characteristics ("Part still looks like print").	❑	❑	❑
	• Surface finish (I/O) not scratched or damaged	❑	❑	❑
	• Cosmetic attributes met quality specifications (features conformed to print requirements).	❑	❑	❑
	• Part angles/radii conformed to print specifications or control tolerances. **C**	❑	❑	❑
	• Flange lengths in conformance with dimensional specifications. **C**	❑	❑	❑

Process Steps	*Process-Product* Standards	Yes	No	*NA*
	B - PRODUCTION OPERATIONS & PROCESS CONTROL *Continued*			
Inspect Parts Using Hand-Held Precision Measurement Devices *Continued*	• Flange squareness, perpendicularly, and/or parallelism conforms to dimensional standards and part characteristics. **C**	❑	❑	❑
	• Other critical dimensions in-conformance with quality control standards (i.e., OAL, hole-to-hole, height, setbacks, etc.). **C**	❑	❑	❑
	• Demonstrated ability using and reading hand-held precision measuring instruments.	❑	❑	❑
	• Completed/input in-process inspection, quality control documentation accurately and legibly.	❑	❑	❑
	• Piece-parts inspected met quality control/SPC criteria and production standards (process edited or adjusted as needed).	❑	❑	❑
	• No cross-contamination of bad parts with finished good parts. *(Yes = this did not occur).*	❑	❑	❑
	C - PRODUCTION SHUTDOWN or HANDOFF			
7. Shutdown Press Brake or Handoff to Production	• Cycle stopped at correct position (correct indicator lights illuminated or off).	❑	❑	❑
	• Power source to ram inactive.	❑	❑	❑
	• Input/recorded end-of-run job status (i.e., part count, worker ID#, part number, amount of scrap, time, etc.)	❑	❑	❑
	• Completed/input and submitted/sent inspection forms, SPC data, and/or production documentation.	❑	❑	❑
	• Equipment, control panel, tooling and gages checked for service items or maintenance.	❑	❑	❑
	• Filler block and tooling clean (no oil buildup, slivers, etc.	❑	❑	❑
	• Measuring devices and gages clean (no apparent damage) and stored (or handed over).	❑	❑	❑
	• Workstation left clean (demonstrated proper housekeeping).	❑	❑	❑
	• Maintenance (equipment servicing) items noted/requested or provided.	❑	❑	❑
DATE FINISHED:	• Machine locked out (*@ zero energy*) for total shutdown or at safety rest (idle mode) for handoff.	❑	❑	❑

❑ ***Electrical Press Brake*** ❑ ***Hydraulic Press Brake*** ❑ ***Other*** _____?

FINAL PRODUCT STANDARDS

"Work is Done As Expected When:"

- **a.** ❑ All written/verbal instructions, checklists, and guidelines were followed and candidate demonstrated safe workplace practices in material handling, machine operations, guarding, controlling the process, and when cleaning.
- **b.** ❑ Minor adjustments or cnc program edits were made to setup as necessary to attain (and maintain) part conformance.
- **c.** ❑ All quality control/SPC inspections were performed at correct intervals to Quality Plan criteria and recorded/input for compliance/non-compliance within the part's required profile(s), tolerances, and dimensions (Lot check *@ Zero Defect*).
- **d**. ❑ Final part count matched in-process count.
- **e.** ❑ Parts were made to production (%) rate standards and inspected on an on-going basis without contaminating good/bad parts.
- **f.** ❑ Current print and tangible part features/characteristics met specified or implied needs as per usability, reliability, maintainability, and economics.
- **g.** ❑ All shop safety and housekeeping practices and procedures have been followed.

PART NUMBER USED FOR THIS SKILL CHECK:

COMMENTS

Operate CNC Press Brake

Candidate: _____

_____

_____

Examiner: _____

_____

_____

Signatures: _____ **Date:** _____
(Examiner/Advisor)

_____ **Date:** _____
(Monitor/Trainer)

_____ **Date:** _____
(Candidate)

Examiner's CHECKLIST - SKILL CHECK # 2

Operate an Electrical or Hydraulic Press Brake with a CNC Controlled RAM and Gagging

Process Steps	*Process-Product* Standards			
DATE STARTED:	**PART NUMBER USED:**	**Yes**	**No**	***NA***
A - PRE-PRODUCTION JOB PLANNING				
1. Prepare for Production Run	• Prints, technical drawings, and/or controlling documents obtained/on screen and matched to setup specifications. **C**	❑	❑	❑
	• Work or job order matched print/drawing number.	❑	❑	❑
	• Computer control panel active, programmed, and set to correct mode of operation.	❑	❑	❑
	• Raw material staged at job site.	❑	❑	❑
	• Material handling equipment/tools organized at job site.	❑	❑	❑
	• Finished part container(s) in correct position.	❑	❑	❑
	• Inspection plan acknowledged for dimensional controls/tolerances and frequency of in-process part inspections.	❑	❑	❑
	• Calibrated measuring instruments, devices, and gages at workstation and organized on bench (Tags current).	❑	❑	❑
B - PRODUCTION OPERATIONS & PROCESS CONTROL				
2. Start/Re-Start Machine and Make Samples/First Piece-Part	• Workstation organized and cleared of debris and obstructions.	❑	❑	❑
	• Tool assembly clear of objects and obstructions. **C**	❑	❑	❑
	• Machine is "On" and will cycle (computer actuated ram will travel).	❑	❑	❑
	• Safety devices, sensors, and guards operational and verified for function.	❑	❑	❑
	• Material fed and machine cycled.	❑	❑	❑
	• No alarms, unusual noise, odors, smoke, or excessive vibrations were present.	❑	❑	❑
	• Samples or first article bent according to pre-programmed setup sequence/simulation.	❑	❑	❑
	• Bending positions and sequence did not crash part/material into machine *(Yes = did **not** occur).*	❑	❑	❑
	• Samples or piece-part safely removed without damaging part or tooling.	❑	❑	❑

Process Steps	*Process-Product* Standards	Yes	No	*NA*
	B - PRODUCTION OPERATIONS & PROCESS CONTROL *Continued*			
3. Inspect Samples/First Piece-Part for Conformance	• Samples/piece-part visually inspected for conformity ("part looks like print").	❑	❑	❑
	• Cosmetic attributes and finish met quality standards and/or customer requirements. **C**	❑	❑	❑
	• All angles/radii conformed to print specifications and tolerances. **C**	❑	❑	❑
	• Flange lengths in conformance with dimensional specifications.	❑	❑	❑
	• Flange squareness, perpendicularly, and/or parallelism conformed to dimensional standards and part characteristics. **C**	❑	❑	❑
	• Other critical dimensions in-conformance with quality control standards (i.e., OAL, hole-to-hole, height, setbacks, etc.). **C**	❑	❑	❑
	• Demonstrated ability using and reading hand-held precision measuring instruments.	❑	❑	❑
	• All features conformed to print, SPC, and/or customer requirements. **C**	❑	❑	❑
	• Completed/input all inspection, quality control documentation accurately and legibly (including sign-offs).	❑	❑	❑
	• Press brake and process control devices are "production ready" (No alarms present).	❑	❑	❑
4. Operate CNC Press Brake and Make Piece-Parts ***(Candidate must operate machine and make piece-parts, on an on going basis up to the2nd in-process part inspection)***	• Arms, hands, and fingers kept clear of ram and all secondary pinch points. **C**	❑	❑	❑
	• Material continuously fed flat and against all stops. **C**	❑	❑	❑
	• No back or forward bending of part/material (Demonstrated correct material handling, feed and follow through techniques).	❑	❑	❑
	• Adhered to verified bending sequence and direction (no crashes). **C**	❑	❑	❑
	• No excessive vibration, squealing, smoke, or alarms were present *(Yes = these did not occur).*	❑	❑	❑
	• Tooling or press brake was not damaged during operations *(Yes = no damage occurred).*	❑	❑	❑
	• Piece-parts carefully removed from die/tool area after completion of bending sequence.	❑	❑	❑
	• Quality finished piece-parts placed (or stacked) in proper holder/container or pallet.	❑	❑	❑

Process Steps	*Process-Product* Standards	Yes	No	*NA*
	B - PRODUCTION OPERATIONS & PROCESS CONTROL *Continued*			
Operate Press Brake and Make Piece-Parts *Continued*	• Piece-parts correctly packed/stacked (No damage to finished parts occurred during operations or transfer).	❑	❑	❑
	• Piece-parts or finished container tagged for traceability.	❑	❑	❑
	• No bad/defective piece-parts mixed with good parts *(Yes = no cross-contamination occurred)*. **C**	❑	❑	❑
	• Percentage of scrap within acceptable standards.	❑	❑	❑
	• Pro-rated production rate (e.g., "parts made *per* minute") met or exceeded process standards.	❑	❑	❑
	• Quality parts pressed on a continuous basis up to the first in-process QC inspection.	❑	❑	❑
	• Work area kept clean and organized during run.	❑	❑	❑
5. Inspect Parts Using Hand-Held Precision Measurement Devices ☝ *(First Required In-Process Part Inspection)*	• Executed 1st in-process part inspection in accordance with inspection/quality plan.	❑	❑	❑
	• Bend sequence conformed to part characteristics ("part still looks like the print").	❑	❑	❑
	• Surface finish not scratched or damaged	❑	❑	❑
	• Cosmetic attributes met quality specifications (features conformed to print requirements).	❑	❑	❑
	• Part angles/radii conformed to print specifications. **C**	❑	❑	❑
	• Flange lengths in conformance with dimensional specifications. **C**	❑	❑	❑
	• Flange squareness, perpendicularly, and/or parallelism conformed to dimensional standards and part characteristics. **C**	❑	❑	❑
	• Other critical dimensions in-conformance with quality control standards (i.e., OAL, hole-to-hole, height, setback, etc.). **C**	❑	❑	❑
	• Demonstrated ability using and reading hand-held precision measuring instruments.	❑	❑	❑
	• Completed/input in-process inspection, quality control/SPC data accurately and legibly.	❑	❑	❑
	• Piece-parts inspected met quality and production standards (process adjusted or edited as needed).	❑	❑	❑
	• No cross contamination of out-of spec/defective parts with finished quality parts *(Yes = this did **not** occur).*	❑	❑	❑

Process Steps	*Process-Product* Standards	Yes	No	*NA*
	B - PRODUCTION OPERATIONS & PROCESS CONTROL *Continued*			
6. Continue Production Run and Make Piece-Parts	• Arms, hands, and fingers kept clear of ram and all secondary pinch points. **C**	❑	❑	❑
	• Material continuously fed flat and against all stops. **C**	❑	❑	❑
	• Demonstrated correct feed and follow through (*No back or forward bending of part/material).*	❑	❑	❑
	• Adhered to verified bending sequence and direction *(no crashes occurred).*	❑	❑	❑
	• No excessive vibration, squealing, smoke, or alarms present *(Yes = did **not** occur).*	❑	❑	❑
	• Tooling, tool assembly, or press brake was not damaged during operations.	❑	❑	❑
	• Piece-parts carefully removed from die/tool area after completion of bending sequence.	❑	❑	❑
	• Quality finished piece-parts placed (or stacked) in proper holder/container or pallet.	❑	❑	❑
	• Piece-parts correctly packed *(No damage to finished parts during operations or transfer).*	❑	❑	❑
	• Piece-parts/finished container tagged for traceability.	❑	❑	❑
	• No bad/defective piece-parts mixed with good parts *(Yes = no cross-contamination occurred).*	❑	❑	❑
	• Percentage of scrap within acceptable standards.	❑	❑	❑
	• Pro-rated production rate (e.g., "parts made *per* minute") met or exceeded process standards.	❑	❑	❑
	• Work area kept clean and organized during run.	❑	❑	❑
	• Quality parts pressed on a continuous basis up to the 2nd scheduled in-process QC inspection.	❑	❑	❑
	• Floor clean, dry and free of debris.	❑	❑	❑
7. Inspect Parts Using Hand-Held Precision Measurement Devices ✌ *(Second Required In-Process Part Inspection)*	• Executed 2nd in-process part inspection in accordance with inspection/quality plan.	❑	❑	❑
	• Bend sequence conformed to part characteristics ("Part still looks like print").	❑	❑	❑
	• Surface finish (I/O) not scratched or damaged	❑	❑	❑
	• Cosmetic attributes and finish met quality specifications (features conformed to print requirements).	❑	❑	❑
	• Part angles/radii conformed to print specifications or control tolerances. **C**	❑	❑	❑
	• Flange lengths in conformance with dimensional specifications. **C**	❑	❑	❑

Process Steps	*Process-Product* Standards	Yes	No	*NA*
	B - PRODUCTION OPERATIONS & PROCESS CONTROL *Continued*			
Inspect Parts Using Hand-Held Precision Measurement Devices *Continued*	• Flange squareness, perpendicularly, and/or parallelism conforms to dimensional standards and part characteristics. **C**	❑	❑	❑
	• Other critical dimensions in-conformance with quality control standards (i.e., OAL, hole-to-hole, height, setbacks, etc.). **C**	❑	❑	❑
	• Demonstrated ability using and reading hand-held precision measuring instruments.	❑	❑	❑
	• Completed/input in-process inspection, quality control documentation accurately and legibly.	❑	❑	❑
	• Piece-parts inspected met quality control/SPC criteria and production standards (process edited or adjusted as needed).	❑	❑	❑
	• No cross-contamination of bad parts with finished good parts. *(Yes = this did not occur).*	❑	❑	❑
	C - PRODUCTION SHUTDOWN or HANDOFF			
7. Shutdown Press Brake or Handoff to Production	• Cycle stopped at correct position (correct indicator lights illuminated or off).	❑	❑	❑
	• Power source to ram inactive.	❑	❑	❑
	• Input/recorded end-of-run job status (i.e., part count, worker ID#, part number, amount of scrap, time, etc.)	❑	❑	❑
	• Completed/input and submitted/sent inspection forms, SPC data, and/or production documentation.	❑	❑	❑
	• Equipment, control panel, tooling and gages checked for service items or maintenance.	❑	❑	❑
	• Filler block and tooling clean (no oil buildup, slivers, etc.	❑	❑	❑
	• Measuring devices and gages clean (no apparent damage) and stored (or handed over).	❑	❑	❑
	• Workstation left clean (demonstrated proper housekeeping).	❑	❑	❑
	• Maintenance (equipment servicing) items noted/requested or provided.	❑	❑	❑
DATE FINISHED:	• Machine locked out (*@ zero energy*) for total shutdown or at safety rest (idle mode) for handoff.	❑	❑	❑

❑ ***Electrical Press Brake*** ❑ ***Hydraulic Press Brake*** ❑ ***Other*** _____?

FINAL PRODUCT STANDARDS

"Work is Done As Expected When:"

- **a.** ❑ All written/verbal instructions, checklists, and guidelines were followed and candidate demonstrated safe workplace practices in material handling, machine operations, guarding, controlling the process, and when cleaning.
- **b.** ❑ Minor adjustments or cnc program edits were made to setup as necessary to attain (and maintain) part conformance.
- **c.** ❑ All quality control/SPC inspections were performed at correct intervals to Quality Plan criteria and recorded/input for compliance/non-compliance within the part's required profile(s), tolerances, and dimensions (Lot check *@ Zero Defect*).
- **d**. ❑ Final part count matched in-process count.
- **e.** ❑ Parts were made to production (%) rate standards and inspected on an on-going basis without contaminating good/bad parts.
- **f.** ❑ Current print and tangible part features/characteristics met specified or implied needs as per usability, reliability, maintainability, and economics.
- **g.** ❑ All shop safety and housekeeping practices and procedures have been followed.

PART NUMBER USED FOR THIS SKILL CHECK:

COMMENTS

Operate CNC Press Brake

Candidate: _____

_____

_____

Examiner: _____

_____

_____

Signatures: _____ **Date:** _____
(Examiner/Advisor)

_____ **Date:** _____
(Monitor/Trainer)

_____ **Date:** _____
(Candidate)

Examiner's CHECKLIST - SKILL CHECK # 3

Operate an Electrical or Hydraulic Press Brake with a CNC Controlled RAM and Gagging

Process Steps	*Process-Product* Standards			
DATE STARTED:	**PART NUMBER USED:**	**Yes**	**No**	***NA***
A - PRE-PRODUCTION JOB PLANNING				
1. Prepare for Production Run	• Prints, technical drawings, and/or controlling documents obtained/on screen and matched to setup specifications. **C**	❑	❑	❑
	• Work or job order matched print/drawing or reference part number.	❑	❑	❑
	• Computer control panel active, programmed, and set to correct mode of operation.	❑	❑	❑
	• Raw material staged at job site.	❑	❑	❑
	• Material handling equipment/tools organized at job site.	❑	❑	❑
	• Finished part container(s) in correct position.	❑	❑	❑
	• Inspection plan acknowledged for dimensional controls/tolerances and frequency of in-process part inspections.	❑	❑	❑
	• Calibrated measuring instruments, devices, and gages at workstation and organized on bench (Tags current).	❑	❑	❑
B - PRODUCTION OPERATIONS & PROCESS CONTROL				
2. Start/Re-Start Machine and Make Samples/First Piece-Part	• Workstation organized and cleared of debris and obstructions.	❑	❑	❑
	• Tool assembly clear of objects and obstructions. **C**	❑	❑	❑
	• Machine is "On" and will cycle (computer actuated ram will travel).	❑	❑	❑
	• Safety devices, sensors, and guards operational and verified for function.	❑	❑	❑
	• Material fed and machine cycled.	❑	❑	❑
	• No alarms, unusual noise, odors, smoke, or excessive vibrations were present.	❑	❑	❑
	• Samples or first article bent according to pre-programmed setup sequence/simulation.	❑	❑	❑
	• Bending positions, directions and sequence did not crash part into machine *(Yes = did **not** occur).*	❑	❑	❑
	• Samples or piece-part safely removed without damaging part or tooling.	❑	❑	❑

Process Steps	*Process-Product* Standards	Yes	No	*NA*
	B - PRODUCTION OPERATIONS & PROCESS CONTROL *Continued*			
3. Inspect Samples/First Piece-Part for Conformance	• Samples/piece-part visually inspected for conformity ("part looks like print").	❑	❑	❑
	• Cosmetic attributes and finish met quality standards and/or customer requirements. **C**	❑	❑	❑
	• All angles/radii conformed to print specifications and tolerances. **C**	❑	❑	❑
	• Flange lengths in conformance with dimensional specifications.	❑	❑	❑
	• Flange squareness, perpendicularly, and/or parallelism conformed to dimensional standards and part characteristics. **C**	❑	❑	❑
	• Other critical dimensions in-conformance with quality control standards (i.e., OAL, hole-to-hole, height, setbacks, etc.). **C**	❑	❑	❑
	• Demonstrated ability using and reading hand-held precision measuring instruments.	❑	❑	❑
	• All features conformed to print, SPC, and/or customer requirements. **C**	❑	❑	❑
	• Completed/input all inspection, quality control documentation accurately and legibly (including sign-offs).	❑	❑	❑
	• Press brake and process control devices are "production ready" (No alarms present).	❑	❑	❑
4. Operate CNC Press Brake and Make Piece-Parts ***(Candidate must operate machine and make piece-parts, on an on going basis up to the2nd in-process part inspection)***	• Arms, hands, and fingers kept clear of ram and all secondary pinch points. **C**	❑	❑	❑
	• Material continuously fed flat and against all stops. **C**	❑	❑	❑
	• No back or forward bending of part/material (Demonstrated correct material handling, feed and follow through techniques).	❑	❑	❑
	• Adhered to verified bend directional layout and sequence (no crashes). **C**	❑	❑	❑
	• No excessive vibration, squealing, smoke, or alarms were present *(Yes = these did **not** occur).*	❑	❑	❑
	• Tooling or press brake was not damaged during operations *(Yes = no damage occurred).*	❑	❑	❑
	• Piece-parts carefully removed from die/tool area after completion of bending sequence.	❑	❑	❑
	• Quality finished piece-parts placed (or stacked) in proper holder/container or pallet.	❑	❑	❑

Process Steps	*Process-Product* Standards	Yes	No	*NA*
	B - PRODUCTION OPERATIONS & PROCESS CONTROL *Continued*			
Operate Press Brake and Make Piece-Parts *Continued*	• Piece-parts correctly packed/stacked (No damage to finished parts occurred during operations or transfer).	❑	❑	❑
	• Piece-parts or finished container tagged for traceability.	❑	❑	❑
	• No bad/defective piece-parts mixed with good parts *(Yes = no cross-contamination occurred)*. **C**	❑	❑	❑
	• Percentage of scrap (or rework) within acceptable standards. **C**	❑	❑	❑
	• Pro-rated production rate (e.g., "parts made *per* minute") met or exceeded process standards.	❑	❑	❑
	• Quality parts pressed on a continuous basis up to the first in-process QC inspection.	❑	❑	❑
	• Work area kept clean and organized during run.	❑	❑	❑
5. Inspect Parts Using Hand-Held Precision Measurement Devices ☝ *(First Required In-Process Part Inspection)*	• Executed 1st in-process part inspection in accordance with inspection/quality plan.	❑	❑	❑
	• Bend sequence conformed to part characteristics ("part still looks like the print").	❑	❑	❑
	• Surface finish not scratched or damaged	❑	❑	❑
	• Cosmetic attributes met quality specifications (features conformed to print requirements).	❑	❑	❑
	• Part angles/radii conformed to print specifications. **C**	❑	❑	❑
	• Flange lengths in conformance with dimensional specifications. **C**	❑	❑	❑
	• Flange squareness, perpendicularly, and/or parallelism conformed to dimensional standards and part characteristics. **C**	❑	❑	❑
	• Other critical dimensions in-conformance with quality control standards (i.e., OAL, hole-to-hole, height, setbacks, etc.). **C**	❑	❑	❑
	• Demonstrated ability using and reading hand-held precision measuring instruments.	❑	❑	❑
	• Completed/input in-process inspection, quality control/SPC data accurately and legibly.	❑	❑	❑
	• Piece-parts inspected met quality and production standards (process adjusted or edited as needed).	❑	❑	❑
	• No cross contamination of out-of spec/defective parts with finished quality parts *(Yes = this did **not** occur).*	❑	❑	❑

Process Steps	*Process-Product* Standards	Yes	No	*NA*
	B - PRODUCTION OPERATIONS & PROCESS CONTROL *Continued*			
6. Continue Production Run and Make Quality Piece-Parts	• Arms, hands, and fingers kept clear of ram and all secondary pinch points. **C**	❑	❑	❑
	• Material continuously fed flat and against all stops. **C**	❑	❑	❑
	• Demonstrated correct feed and follow through (*No back or forward bending of part/material).*	❑	❑	❑
	• Adhered to verified bending sequence *(no crashes occurred).*	❑	❑	❑
	• No excessive vibration, squealing, smoke, or alarms present *(Yes = these conditions did **not** occur).*	❑	❑	❑
	• Tooling, tool assembly, or press brake was not damaged during operations.	❑	❑	❑
	• Piece-parts carefully removed from die/tool area after completion of bending sequence.	❑	❑	❑
	• Quality finished piece-parts placed (or stacked) in proper holder/container or pallet.	❑	❑	❑
	• Piece-parts correctly packed *(No damage to finished parts during operations or transfer).*	❑	❑	❑
	• Piece-parts/finished container tagged for traceability.	❑	❑	❑
	• No bad/defective piece-parts mixed with good parts *(Yes = no cross-contamination occurred).*	❑	❑	❑
	• Percentage of scrap (or rework) within acceptable standards. **C**	❑	❑	❑
	• Pro-rated production rate (e.g., "parts made *per* minute") met or exceeded process standards.	❑	❑	❑
	• Work area kept clean and organized during run.	❑	❑	❑
	• Quality parts pressed on a continuous basis up to the 2nd scheduled in-process QC inspection.	❑	❑	❑
	• Floor clean, dry and free of debris.	❑	❑	❑
7. Inspect Parts Using Hand-Held Precision Measurement Devices ✌ *(Second Required In-Process Part Inspection)*	• Executed 2nd in-process part inspection in accordance with inspection/quality plan.	❑	❑	❑
	• Bend sequence conformed to part characteristics ("Part still looks like print").	❑	❑	❑
	• Surface finish (I/O) not scratched or damaged	❑	❑	❑
	• Cosmetic attributes met quality specifications (features conformed to print requirements).	❑	❑	❑
	• Part angles/radii conformed to print specifications or control tolerances. **C**	❑	❑	❑
	• Flange lengths in conformance with dimensional specifications. **C**	❑	❑	❑

Process Steps	*Process-Product* Standards	Yes	No	*NA*
	B - PRODUCTION OPERATIONS & PROCESS CONTROL *Continued*			
Inspect Parts Using Hand-Held Precision Measurement Devices *Continued*	• Flange squareness, perpendicularly, and/or parallelism conforms to dimensional standards and part characteristics. **C**	❑	❑	❑
	• Other critical dimensions in-conformance with quality control standards (i.e., OAL, hole-to-hole, height, setbacks, etc.). **C**	❑	❑	❑
	• Demonstrated ability using and reading hand-held precision measuring instruments.	❑	❑	❑
	• Completed/input in-process inspection, quality control documentation accurately and legibly.	❑	❑	❑
	• Piece-parts inspected met quality control/SPC criteria and production standards (process edited or adjusted as needed).	❑	❑	❑
	• No cross-contamination of bad parts with finished good parts. *(Yes = this did **not** occur).*	❑	❑	❑
	C - PRODUCTION SHUTDOWN or HANDOFF			
7. Shutdown Press Brake or Handoff to Production	• Cycle stopped at correct position (correct indicator lights illuminated or off).	❑	❑	❑
	• Power source to ram inactive.	❑	❑	❑
	• Input/recorded end-of-run job status (i.e., part count, worker ID#, part number, amount of scrap, time, etc.)	❑	❑	❑
	• Completed/input and submitted/sent inspection forms, SPC data, and/or production documentation.	❑	❑	❑
	• Equipment, control panel, tooling and gages checked for service items or maintenance.	❑	❑	❑
	• Filler block and tooling clean (no oil buildup, slivers, etc.	❑	❑	❑
	• Measuring devices and gages clean (no apparent damage) and stored (or handed over).	❑	❑	❑
	• Workstation left clean (demonstrated proper housekeeping).	❑	❑	❑
	• Maintenance (equipment servicing) items noted/requested or provided.	❑	❑	❑
DATE FINISHED:	• Machine locked out (*@ zero energy*) for total shutdown or at safety rest (idle mode) for handoff.	❑	❑	❑

❑ ***Electrical Press Brake*** ❑ ***Hydraulic Press Brake*** ❑ ***Other*** _____?

FINAL PRODUCT STANDARDS

"Work is Done As Expected When:"

- **a.** ❑ All written/verbal instructions, checklists, and guidelines were followed and candidate demonstrated safe workplace practices in materials handling, machine operations, guarding, controlling the process, and when cleaning.
- **b.** ❑ Minor adjustments or cnc program edits were made to setup as necessary to attain (and maintain) part conformance.
- **c.** ❑ All quality control/SPC inspections were performed at correct intervals to Quality Plan criteria and recorded/input for compliance/non-compliance within the part's required profile(s), tolerances, and dimensions (Lot check @ *Zero Defect*).
- **d**. ❑ Final part count matched in-process count.
- **e.** ❑ Parts were made to production (%) rate standards and inspected on an on-going basis without contaminating good/bad parts.
- **f.** ❑ Current print and tangible part features/characteristics met specified or implied needs as per usability, reliability, maintainability, and economics.
- **g.** ❑ All shop safety and housekeeping practices and procedures have been followed.

PART NUMBER USED FOR THIS SKILL CHECK:

COMMENTS

Operate CNC Press Brake

Candidate: _____

_____

_____

Examiner: _____

_____

_____

Signatures: _____ **Date:** _____
(Examiner/Advisor)

_____ **Date:** _____
(Monitor/Trainer)

_____ **Date:** _____
(Candidate)

Affidavit of Successful Completion

NIMS Level II CNC Press Brake Credentialing Program

Credentialing Achievement Record

Please print

Candidate Name	Reg. No.	Date Completed:

The credentialing candidate named above has completed all necessary CAR requirements for NIMS Level II OJT recognition.

Site Name and Address:	Site No.

Indicate in the number of Skill Checks completed and dates of successful performance for each Skill Check

Duty Cluster Name ***OPERATE MULTIPLE SPINDLE SCREW MACHINE***	Required Skill Checks	*Number of Skill Checks Completed*
	3	
Successful Skill Check Attempt #1	Date:	
Successful Skill Check Attempt #2	Date:	
Successful Skill Check Attempt #3	Date:	
Work activity experience-eligibility statements have been completed, dated, and co-initialed.	Yes ❑	No ❑

_____ _____19

Site Coordinator/Manager *Signature* **Date**

_____ _____19

Supervisor/Trainer *Signature* **Date**

_____ _____19

Candidate *Signature* **Date**

Make a copy of the completed *Affidavit of Successful Completion* for your records and send original CAR to:

The National Institute for Metalworking Skills
3251 Old Lee Highway, Suite 205
Fairfax, Virginia, 22030
http://nims-skills.org

Completed by candidate or manager

COMMENTS, SPECIAL AWARDS, LICENSES, OR OTHER PROFESSIONAL ACKNOWLEDGMENTS

See attachments if provided