

Prepare. Record. Inspect. Report.

A practical guide to SMAW mild-steel job records, completed-weld checks and guided practice.

1 Welding job

Use before welding. Record the applicable work requirement, enter the actual setup, complete preparation checks, then photograph and review.

2 Completed-weld check

Use when the weld already exists. Record what is known and create a structured visible-surface record without inventing a pre-weld approval.

3 Guided practice

Use one of six sourced beginner exercises, record the actual setup and compare repeated attempts.

What problem does it solve?

WeldCheck connects work requirements, actual setup, pre-welding checks, a weld photograph, visible observations, user confirmation and a printable report. It reduces scattered notes and makes each inspection traceable. It does not certify a weld or replace a WPS, qualified inspector or suitable testing.

1

Choose workflow

2

Record facts

3

Add clear photo

4

Confirm and report

Open weldcheck.cc. Continue as a guest or connect Google to keep private records across devices.

Workflow 1: record a welding job

Choose this path when welding has not yet been completed.

1. Identify the work

- Enter the job or sample number, job name, date and known project details.
- Select the source controlling the work: WPS, drawing, electrode manufacturer information, workshop procedure or a supervisor-approved setup.
- Enter the reference number or description so the source remains traceable.

2. Record the applicable requirement

- Record joint type, mild-steel thickness, electrode classification and size, welding position, polarity where applicable, and the permitted current range.
- Copy these values from the controlling information. WeldCheck must not be used to invent production settings.

3. Check the actual setup

Enter what is physically on the bench and machine. WeldCheck names missing or mismatched items. Correct them before proceeding. Then confirm joint arrangement, cleanliness, electrode, machine setting, connections, PPE and work-area controls.

4. Weld, photograph and review

- Follow the authorised work method and allow the weld to cool.
- Remove loose slag and take a clear photograph showing the bead and both edges.
- Read the visible observations, assessment reason, possible contributing factors, actions and limitations.
- Confirm whether the result matches what you can see, then print or save the report.

Meaning of Ready

Ready means only that the recorded setup and preparation match the requirement entered in WeldCheck. It does not predict weld quality, strength, penetration or code acceptance.

Workflow 2: check a completed weld

Choose this path when the weld already exists and a pre-welding checklist would be misleading.

What to record

- Job or sample number and a short name.
- Known joint, thickness, electrode, position and current information.
- A close, evenly lit photograph after loose slag has been removed.

What the quick check does not do

It does not claim the recorded setting was approved before welding. Recommendations clearly state that no pre-weld requirement was validated and treat the settings only as context.

Photo-quality gate

Check	If unsuitable
Brightness	Use even light; avoid deep shadows and glare.
Contrast	Clean the surface and use a plain background.
Sharpness	Hold steady and tap the weld area to focus.
Dimensions	Move closer so the bead fills most of the frame.

Understanding the result

- Acceptable appearance: no supported issue condition was returned from the photograph.
- Visible issues: one or more supported surface conditions were returned.
- Retake photo: the image is not suitable for a dependable visible-surface review.
- Possible causes are possibilities, not confirmed facts. Follow the applicable procedure and qualified review.

Visible conditions in scope

Visible porosity, undercut, excessive spatter and irregular bead. One photograph may contain several conditions.

Guided welding practice

Workflow 3 - choose this path to develop a specific beginner skill before moving to controlled work.

Six starter exercises

Code	Exercise	Main learning focus
LIB-BEAD-01	Straight bead on flat plate	Steady arc, angle and travel speed
LIB-BEAD-02	Restart and join two beads	Visible stop and restart control
LIB-BEAD-03	Parallel stringer beads	Repeatability between beads
LIB-BUTT-01	Flat square butt joint	Following the fitted joint line
LIB-LAP-01	Flat lap-joint fillet	Following the overlap edge
LIB-T-01	Flat T-joint fillet	Following the plate intersection

Practice sequence

- Choose the exercise and read its objective, steps and expected visible result.
- Record the actual setup and complete all preparation checks.
- Weld, clean and photograph the sample.
- Review the result, choose a correction plan and repeat as needed.
- Use the timeline to compare setup changes and visible conditions between attempts.

Source basis

The starter library uses manufacturer guidance for beginner technique, basic joint descriptions and a specific E6013 3.2 mm practice range on 4.7 mm mild steel. It is supervised practice guidance, not a WPS.

[Miller - Five Steps to Improving Your Stick Welding Technique](#)

[Miller - Guide to the 5 Basic Types of Weld Joints](#)

[Lincoln Electric - STICK Amperage Values](#)

History, reports and safe use

History keeps all three workflows in one dashboard while preserving their meaning.

Saved records

- Every recheck creates a separate inspection; earlier results are not overwritten.
- User confirmation and corrected visible conditions remain separate from the original AI result.
- Optional review decisions can be added with a reviewer name and comment.
- The spreadsheet provides one analysis row per attempt/inspection. JSON is a technical backup and excludes photograph binary data.
- Open an inspection and choose Print or save PDF for the normal readable report.

Limits that must remain visible

- One photograph supports visible-surface observations only.
- WeldCheck cannot determine internal defects, penetration, mechanical strength, service safety or welding-code compliance.
- Image-based suggestions do not prove the cause of a condition.
- Controlled and safety-critical work requires the applicable procedure, qualified personnel and suitable inspection or testing.

Recommended use

Use WeldCheck as a traceable work-record and decision-support tool: prevent recordable setup mistakes where requirements are known, improve photograph quality, structure visible observations, document what was confirmed and keep a report for later review.

Support and access

Website: weldcheck.cc

Guest access is available. Google sign-in keeps private records across devices.

Scope: Shielded Metal Arc Welding (SMAW), mild steel.

WeldCheck - Final year project, Department of Mechanical Engineering, FUT Minna

Optional supervised reference comparison

A saved inspection can be compared with a visible-condition set recorded by a supervisor or prepared-sample reference. This is optional and remains separate from the user's own confirmation or correction.

How to record the reference

1. Open the saved inspection record.
2. Under Reference assessment, select every visible condition included in the supervised reference.
3. Leave every condition clear when the reference result is acceptable.
4. Save the reference. The original WeldCheck result and the user's observation are not overwritten.

Comparison rules

Result	Meaning
Exact match	The WeldCheck and reference condition sets are identical. Two empty acceptable sets are also an exact match.
Partial match	At least one visible condition appears in both sets, but the complete sets are different.
No match	No visible condition overlaps between the two sets.

Where it appears

The comparison is included in the printable inspection report, the History dashboard and the spreadsheet export. Reference conditions can be removed without deleting the inspection.

Evaluation note

A reference comparison evaluates agreement between recorded visible-condition labels. It does not establish internal weld quality, structural strength, code compliance or the accuracy of a destructive or non-destructive test.