

Workshop Wall Pack

Print & Laminate Note · Book 1 Companion

How to use this pack

- Print all sheets on A4 (210 × 297 mm). Colour preferred; B&W still readable.
- Laminate (hot or cold pouch). Hang at eye height near the cabinet — not in the beam path.
- Sheet 3 (Lens / Power Log) — print extras for the clipboard; do not laminate the working copy.
- Every millimetre, %, and distance on these sheets is a starting point only. Map on scrap. OEM manuals win.
- QR code points to the hosted PDF so replacements stay current:
- <https://naturalstonecraft.co.uk/book1-workshop-wall-pack.pdf>
- Keep one laminated set on the wall. Keep the PDF file for reprints after damage or updates.
- Soft next step when Book 1 habits stick: Book 2 — Paint, Powder Coat & Underseal.

Sheets in this pack

- 1 Setup & Shutdown
- 2 Pre-Flight — Ten Checks Before You Fire
- 3 Blank Lens / Power Log (clipboard)
- 4 Which Lens? (F160 / F254 / F330 / F420)
- 5 Stop / Emergency
- 6 Air & Extraction



Scan for PDF

1 · Setup & Shutdown

Numbered power-up / shutdown · Wall habits

POWER-UP (start here)

1. Gun in holster / dull non-reflective rest, pointed safe.
2. E-Stop depressed (latched Off) until ready.
3. Mains / isolation on stable supply (RCD OK).
4. Chiller/coolant OK if fitted — level, fluid, no transit locks.
5. Fans / chiller run $\geq$ ~120 s before beam enable.
6. Eyewear on every head in the room (EN 207 / OD6+).
7. Extraction on; air traps drained if purge air required.
8. Window clean; lens family known; focus mapped today on scrap.
9. E-Stop / interlock test per OEM before live work.
10. Key / enable last — only when room is ready.

SHUTDOWN

1. Beam disable in software; trigger released.
2. Key to Off — remove key if you share the building.
3. E-Stop / storage state per your OEM manual.
4. Lens cap / nozzle cap on. Holster the gun.
5. Drain air traps; isolate compressor if used.
6. Extractor off only after plume cleared.
7. Torch-check window; replace if borderline.
8. Umbilical: wide loops only — never coffee-mug coils.
9. Notebook: date, lens, standoff, OEM %, result.
10. Clear floor trip hazards before you walk away.

WALL HABITS — LENS CAP · KEY · HOLSTER

Cap on whenever idle. Key Off / pocketed when shared workshop. Gun holstered — never resting on polished metal. Umbilical clear of doors and feet.



Every numeric hint = starting points only. Scrap first. Manufacturer manuals win.

2 · Pre-Flight

Ten Checks Before You Fire — tick every box

If any item is NO, the key stays Off. Starting points only — verify against your OEM.

☐

1. Eyewear

BS EN 207 on every head; wavelength + OD match cabinet (OD6+ / prefer OD7+).

☐

2. Room / access

Door shut, warning posted, no bystanders or animals in the beam area.

☐

3. E-Stop

Known location; tested / ready; interlock seated per OEM.

☐

4. Extraction

Fan path out or dedicated hood ~100 mm from work; filters not overdue.

☐

5. Dry air (if required)

Traps drained; regulator at OEM band; no wet spit; no oily shared tool line — or confirmed air-cooled / no-compressor machine.

☐

6. Window

Sacrificial window clean, unpitted, fingerprint-free; spares in the bag.

☐

7. Focus mapped today

Today's standoff taped for the fitted lens (F160 / F254 / F330 / F420) on scrap.

☐

8. Extinguisher

In reach, off the beam path; fuels / aerosols / rags cleared.

☐

9. Screens / barriers

Beam and bounce contained; polished metal behind the job controlled.

☐

10. Notebook

Ready to log date, lens, standoff mm, OEM %, pulse/freq feel, result.

3 · Blank Lens / Power Log

Print extras · clipboard · do not laminate the working copy

Fill one row per scrap map or job start. OEM % / pulse / freq are feels translated to YOUR screen — starting points only.

[illegible]

Print extras / clipboard. Laminate a blank master if you like — write on paper copies.

Every numeric hint = starting points only. Scrap first. Manufacturer manuals win.

4 · Which Lens?

F160 / F254 / F330 / F420 — use · avoid · height cues · NO kHz wall recipe

Focal family stamps are not exact nozzle gaps. Map acoustic peak on scrap. Starting points only.

F160 Tight / punchy	USE WHEN Thick rust, mill scale, heavy plate, cast-iron pores AVOID Thin automotive skin until cold scrap proven TOO CLOSE Deep pits, grooves, window spatter, purple temper TOO FAR Weak clean, soft crackle, little work done
F254 Everyday steel	USE WHEN Gates, chassis rails, wrought iron, mixed estate work AVOID Mirror non-ferrous until tilt + low power proven TOO CLOSE Heat tint / bite marks on the track TOO FAR Slow oxide removal, uneven patchy track
F330 Soft / wide	USE WHEN Thin sheet, anti-warp panels, first learning hour AVOID Expecting F160-speed scale removal on plate TOO CLOSE Oil-canning thin sheet if power still high TOO FAR Cosmetic haze — polish without clean
F420 Long / diffuse	USE WHEN Soft alloys, copper/brass practice, bounce margin AVOID Heavy mill-scale time trials — wrong tool TOO CLOSE Sudden hot spots if you creep in at high power TOO FAR Almost no ablation — false confidence

No frequency / kHz wall recipe here — pulse & freq belong on scrap + your notebook, not a laminated guess.

5 · STOP / EMERGENCY

Eye · Fire · Plume · Reflection · E-Stop

EYE EXPOSURE / SUSPECTED HIT

Beam Off immediately. Key Off. Do not rub eyes. Seek urgent medical / ophthalmology advice — tell them near-IR laser (typically ~1064 nm). Preserve eyewear for inspection. Do not resume work.

FIRE / HOT METAL / IGNITION

Trigger off · Beam disable · E-Stop. Extinguisher for class of fuel — know yours. Clear aerosols and oily rags before you ever start. Call emergency services if beyond a spot extinguish. Ventilate only after flame is out.

PLUME / BREATHING PROBLEM

Stop firing. Step out of the plume path. Extraction on / increase capture. FFP3 / P3 (or PAPR) — never 'tough it out'. If dizziness / asthma / metallic taste persists, medical help. Bag contaminated filters as waste, not kitchen bin fluff.

REFLECTION / WET OR MIRROR METAL

Release trigger. Increase tilt ($\approx 10\text{--}15^\circ$ off square). Drop power. Check for wet film / oil / polish that mirrors the beam. Remap on scrap. Never hunt focus glasses-off.

E-STOP — WHEN AND HOW

Hit E-Stop for any uncontrolled beam, fire, injury, interlock doubt, or bystander breach. Do not reset and re-fire until the cause is understood. Restart only through OEM power-up sequence with room re-cleared.

6 · Air & Extraction

Dry purge · hood capture · lungs · when a fan isn't enough

TRAP DRAIN

Drain water traps before every session that uses purge / assist air. UK workshops make condensate. Wet air fogs and burns optics. Empty bowls into a cup — not across the gun nose.

NO OILY SHARED LINE

Do not tee the laser purge off an oily workshop airline that feeds impact tools. Oil mist cooks windows. Prefer oil-free compressor or filtered dedicated branch with regulator at the OEM band.

HOOD ≈ 100 mm

Dedicated extractor hood / capture face roughly ~100 mm from the work (indicative starting habit — verify capture on scrap smoke). Faraway ceiling fans move air; they do not capture ablation plume at the source.

FFP3 / P3

Wear a sealed FFP3 (or P3 filter) — PAPR if bearded. Ablation plume is particulate plus whatever was on the metal (rust, paint, underseal, possible lead). Never breathe it as a badge of toughness.

WHEN A FAN ISN'T ENOUGH

Visible hanging haze, sticky smell, paint/polymer jobs (Book 2), enclosed corners, or anyone coughing → escalate to dedicated filtration / better hood geometry / outdoor-safe exhaust. Stop the job rather than 'push through'.

QUICK PRE-CHECK

Traps drained? Regulator set? No spit from the hose tip? Extractor on before beam enable? Hood close? Mask sealed? If the machine is air-cooled-only / no compressor required — skip air steps and tick that fact on your checklist.