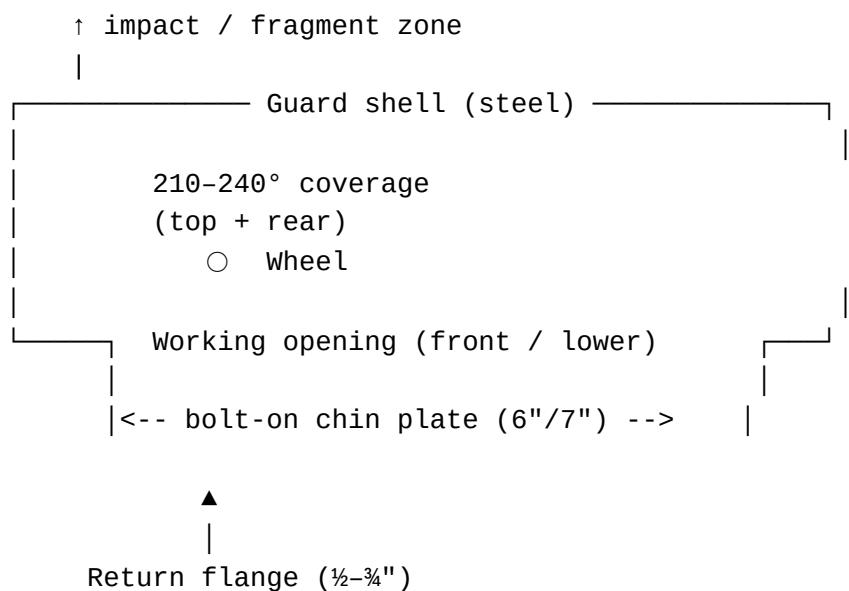


Fabrication Sketches and Drawing Set

Tool & Cutter Grinder Wheel Guards (6", 7", 8")

This document supplements the main fabrication guide with **conceptual sketches, proportional dimensions, and a cut/weld drawing set** suitable for shop fabrication. These are not tolerance-controlled manufacturing drawings; they are **fabricator's drawings** intended for manual layout, fit-up, and adjustment on the machine.

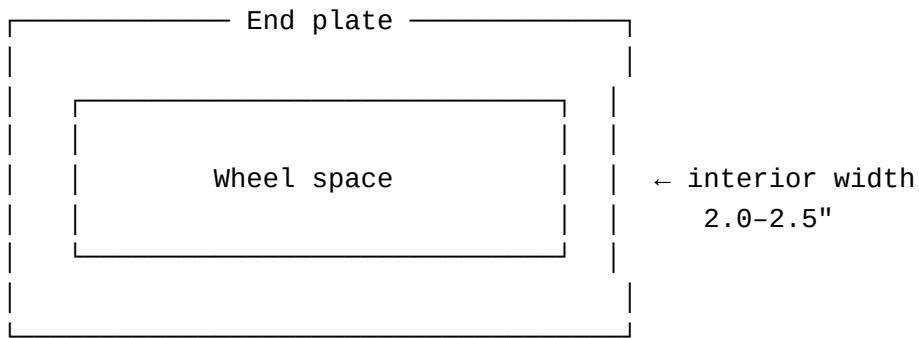
1. Overall Assembly - Side View (Conceptual)



Key notes:

- Shell is sized for **8" wheel envelope**
- Bolt-on chin plate reduces opening for 6" and 7" wheels
- Guard never encloses the lower-rear quadrant where fixtures may pass

2. Guard Shell – End View (Axial)



- End plates welded or bolted
 - Internal welds dressed smooth
 - Interior width chosen for **maximum wheel + flange stack**

3. Guard Shell – Developed Plate Layout (Slip Roll)

Design Envelope (8" wheel)

- Inside radius: **4.125"**
 - Arc coverage: **225° nominal** (adjustable $\pm 15^\circ$)
 - Plate thickness: **0.125"-0.187"**

Developed blank (before rolling)

$$\text{Arc length} = \left(\frac{225^\circ}{360^\circ} \right) \times 2\pi R$$

For R = 4.125":

Circumference \approx 25.9"

Arc length $\approx 16.2''$

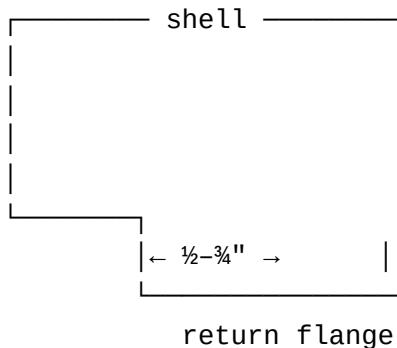
↑
axial width
2.0-2.5"

↑
axial width
2.0-2.5"

Cut slightly oversize, roll, test-fit, then trim.

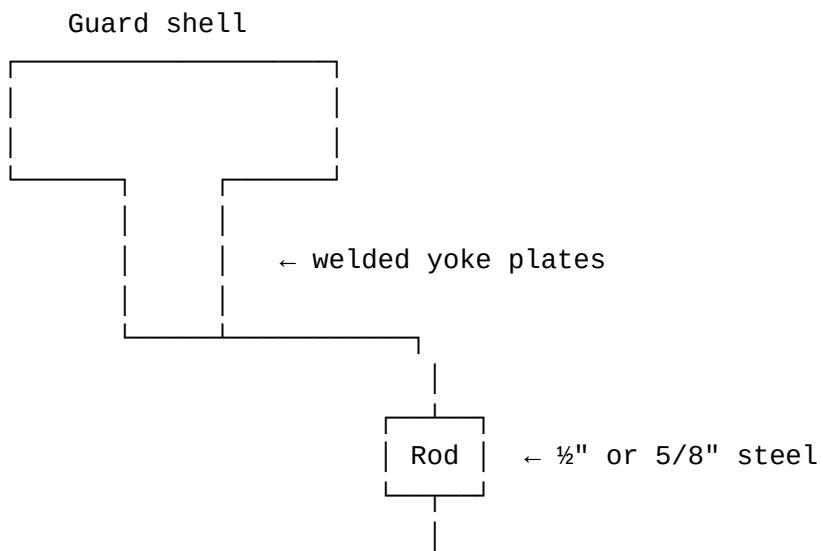
4. Front Return Flange Detail

Cross-section at front opening



- Can be:
 - Formed before rolling, or
 - Welded as a separate strip
- Adds stiffness and improves fragment deflection

5. Rod-Mounted Yoke / Saddle (Side View)

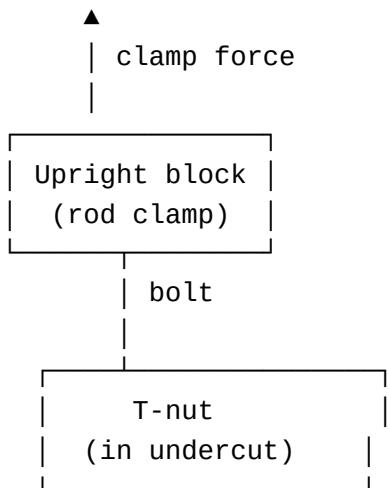


- Yoke plates: 3/8"-1/2" steel
- Bore reamed or drilled to rod size
- Prefer **split clamp** if adjustability is required

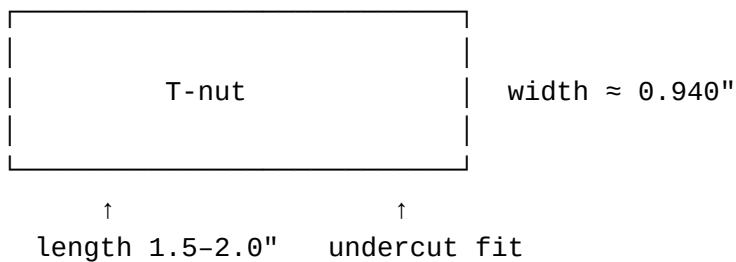
6. Upright Clamp Block + T-Nut Assembly

Side View (Installed)

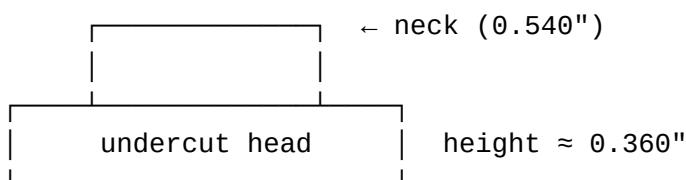
Table / wheelhead top surface



T-Nut - Plan View



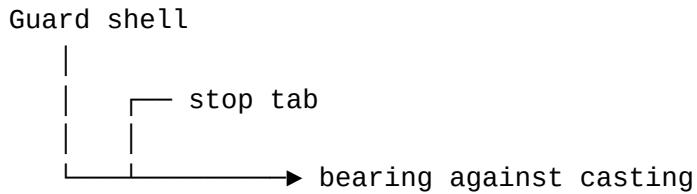
T-Nut - Section



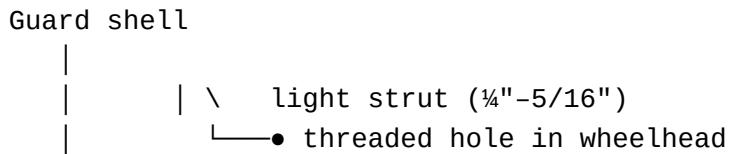
7. Anti-Rotation Features

At least one of the following is recommended:

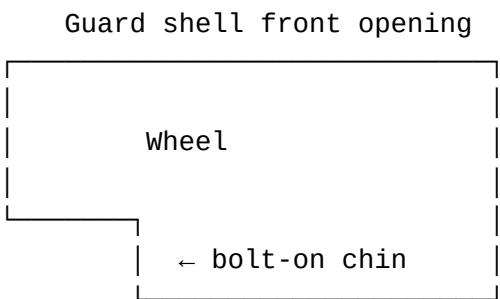
Option A – Stop Tab



Option B – Rear Stabilizer Strut



8. Bolt-On Chin Plates (6" and 7" Wheels)



Typical chin plate depths (approximate):

- 8" wheel: none or minimal
- 7" wheel: ~0.5–0.75"
- 6" wheel: ~1.25–1.5"

Exact depth set by mock-up.

9. Cut List (One 8" Envelope Guard)

Steel Plate

- Shell blank: 3/16" × ~16.5" × (2.0–2.5")
- End plates (2): 3/16" plate, profiled
- Return flange strip: 1/8" × 0.75" × shell length
- Chin plates (2–3 variants): 1/8" plate

Bar Stock

- Rod: ½" or 5/8" steel round, length to suit
- T-nut: 1" × 3/8"-1/2" flat or milled block
- Upright block: ~1.25" × 1.5" × 2.5" steel

Fasteners

- Rod clamp screws
- Chin plate screws (10-32 or 1/4-20)
- T-nut to block screw (3/8-16 or 1/2-13)

10. Weld Sequence (Recommended)

1. Roll shell
2. Fit and tack end plates
3. Weld end plates (alternate sides)
4. Dress internal welds
5. Add return flange
6. Fit and weld yoke plates
7. Fit chin plate mounting tabs
8. Final test-fit on machine
9. Final weld and deburr

Avoid heavy continuous welds in one pass; control distortion.

11. Notes on Scaling for 6" and 7" Guards (If Separate)

If fabricating dedicated shells:

- 7" wheel: inside radius \approx 3.625"
- 6" wheel: inside radius \approx 3.125"
- All other geometry remains the same

12. Final Reminder

These guards are:

- Mechanically credible
- Historically consistent
- Fabricator-adjustable

They are not regulatory artifacts, but they **materially reduce risk** compared to minimal vintage guards or unguarded operation.

End of fabrication sketch set