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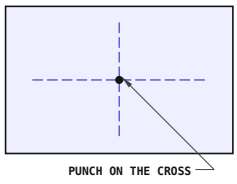
Drilling a Hole: Pilot, Final, Square

Mark · punch · pilot · final · deburr

REFERENCE DRAWING — NOT APPROVED DATA · THE SRM ALWAYS GOVERNS

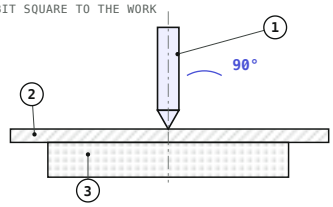
STEP 1

MARK AND PUNCH · PLAN



SECTION A

BIT SQUARE TO THE WORK



SECTION B

PILOT, THEN FINAL



STOP · CHECK · ENLARGE

TABLE

DRILL SIZES FOR STANDARD RIVETS

RIVET Ø, IN	PILOT	FINAL
3/32 (0.0937)	3/32	#40 (0.098)
1/8 (0.125)	1/8	#30 (0.1285)
5/32 (0.1562)	5/32	#21 (0.159)
3/16 (0.1875)	3/16	#11 (0.191)
1/4 (0.250)	1/4	F (0.257)

RULE

HOLES 3/16 IN AND LARGER

PILOT BIT = CHISEL-EDGE WIDTH OF THE FINAL BIT

TOO BIG A PILOT DULLS THE FINAL BIT'S CORNERS

PUNCH MARK ABOUT THE CHISEL-EDGE WIDTH

CENTER PUNCH GROUND 120° TO 135°

PARTS LIST

#	ITEM	RULE	SOURCE
1	Drill bit	HSS 135° split point for aluminium; check it runs true, no wobble	H-8083-31B p. 4-14, 4-17
2	Sheet	Light pressure; the bit cuts, never push it through	p. 4-40
3	Backup block	Wood under the hole to support the sheet	p. 4-14
—	Punch mark	Too small walks; too heavy deforms and work hardens	p. 4-19
—	Burrs	Remove them, rotate a larger bit or countersink by hand	p. 4-14
—	Goggles	Always, while drilling	p. 4-14

PNEUMATIC MOTORS AROUND FLAMMABLE MATERIALS: NO SPARKS. HOLE SIZES FOR OTHER FASTENERS COME FROM THE WORK DOCUMENTS.

NOTES

1. Dimensions in inches. Do not scale: the SRM sets the values.
2. For reference. The applicable manual always governs.
3. Based on FAA-H-8083-31B ch. 4.

REVISIONS

REV	DESCRIPTION	DATE
A	First issue	2026-10-30

The Aviation Point. — Structural repair reference

TITLE			
Drilling a hole			
DRAWING NO.	REV	SCALE	SHEET
TAP-DWG-053	A	NTS	1 OF 1
APPLIES TO			
Rivet holes in sheet			

DO NOT SCALE DRAWING

After FAA-H-8083-31B pp. 4-14, 4-17, 4-19, 4-20, 4-39, 4-40 (Figs. 4-52, 4-90). Other fasteners take the hole size in their work documents.

Drill sizes for standard rivets

Rivet Ø, in	Pilot	Final
3/32 (0.0937)	3/32	#40 (0.098)
1/8 (0.125)	1/8	#30 (0.1285)
5/32 (0.1562)	5/32	#21 (0.159)
3/16 (0.1875)	3/16	#11 (0.191)
1/4 (0.250)	1/4	F (0.257)

Key points

- **Square going in and coming out.** Tilting egg-shapes the hole.
- **Hole about 0.003 in over the shank tolerance.**
- **Bit cuts, you do not push.**

Step by step

1. Mark, punch.
2. Backup block, check the bit.
3. Pilot.
4. Final.
5. Deburr, clear chips.

SOURCES · FAA-H-8083-31B, Aviation Maintenance Technician Handbook: Airframe, Chapter 4 · FAA AC 43.13-1B CHG 1, Acceptable Methods, Techniques and Practices

SCAN · OPEN THIS GUIDE
theaviationpoint.com/standard-practices/drilling/

Educational reference only, not approved data. Always consult the applicable SRM, AMM, or AC 43.13-1B and your certifying authority.

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