

Acadiana 500 Tricycle – “Fast Pedal Engineers” - BoM, Labor, & Weight / Part

Table 1: Purchased Components: Bill of Materials

Item	Qty	Unit Cost (\$)	Source
20 in front wheel assembly (hub+cranks+coaster)	1	31.99	Razer DXT
Titanium pedal extenders, 16 mm (pair)	1	35.99	Amazon
Aluminum flat pedals (pair)	1	27.99	Amazon
Handlebar grips (pair)	1	6.98	Amazon
Banana saddle w/ support	1	55.99	Amazon
TOTAL		~158.94	

Table 2: Component Summary with Materials and Mass

#	Component	Qty	Material / Grade	Source	Cost \$	Notes
1	20 in wheel + crank arms	1	Steel hub / 6061 rim	Purchased	31.99	Hub + cranks + coaster
2	Titanium pedal extenders	1	Ti-6Al-4V	Purchased	35.99	Adds 0.63 in pedal clearance
3	Aluminum flat pedals	1	Steel spindle / Alu body	Purchased	28	½-20 crank thread
4	Handlebar grips	1	ABS / EPDM	Purchased	12	5 inch length
5	Banana seat	1	Vinyl / steel rails	Purchased	45	460×115 mm; rails reused
6	Main frame triangle	1	1018 HR steel	Re-used	0	TIG-modified
7	Fork	1	1018 steel	Re-used	0	Steel donor
8	Stem body	1	1018 steel	Re-used	0	+7 in extension
9	Handlebars	1	1018 tube	Re-used	0	9 in width
10	Headset & bearings	Set	Alloy steel	Re-used	0	M10 × 1.0

11	Rear wheels (10 in)	2	Rubber tire / steel hub	Re-used	0	e-sports, Guatemala
12	Seat rods	2	1018 tube	Re-purposed	0	Came with seat kit
13	Misc. machined parts	9 pcs	1018 / 4130 / 6061 / C360	UL Lab	0	In-house machined

Table 3: Machined Components – Labor and Market Value (Hypothetical)

ID	Component	Alloy	Process Route	Mass (lb)	Design	Labor (\$)	Material (\$)	Total (\$)	\$ Paid
M-1	Stem extension	1018 steel	CNC-turn 1h → TIG 0.5h	4.7	Raises bars	75	8	83	0
M-2	Seat T-anchor	6061-T6	3-axis mill 1.5h	0.55	Locks banana seat	83	6	89	0
M-3	Center tube	4130 N	CNC-turn 0.75h	0.73	Houses bushing	41	4	45	0
M-4	Rear bushings ×2	4130 / C360	CNC-turn 2h → press-fit	4	Transfers torque	110	12	122	0
M-5	Brass axle spacers	C360	CNC-turn 0.5h	0.16	Shims	28	3	31	0
M-6	Bushing-to-frame ×2	1018	CNC-turn 0.5h	0.9	Locates center tube	28	2	30	0
M-7	Seat welds	1018	TIG 1.0h	3.2	Supports seat	40	0	40	0
M-8	Push-bar add-on	1018 rod	TIG 0.25h	0.25	Shove transition	10	1	11	0