



Senna's current status:

We removed the wrap for a few reasons, one to make sure he's not too attention-getting for street use and two because he's actually quite beautiful without it.

His current (October 2016) suspension setup is using 450/375 springs for a more street- and backroad-friendly ride and he has our newest version of KBO (v1.9) and Ripple Reducer. Also included in his sale is a free revalve of the existing dampers along with (4) free springs at that point, if / as needed depending on the new owner's goals (including moving the suspension to another platform).

Senna's original 1995 1.8L motor currently has 127,000 miles and has been tracked 5 times. Adult-driven and responsibly-shifted (no power shift stupidity). The ECU has been retuned by Hideo, an SF Bay Area Japanese-connected tuner who combined effective changes with durability. The rev limit has been raised a few hundred RPM from 7200 to 7400 but most shifts are done by 7000. The Racing Beat header / mid-pipe / exhaust are currently off the car and a stock header with OE catalytic converted were installed in preparation for smog testing.



Senna's look as of October 2016, with wrap removed (except for Brazilian flag on roof)



Front license plate is mounted to Garage Star offset license plate



Lower section of rear bumper is cut to reduce 'parachute' effect from stock bumper



Update: 10/15/2016 – Senna has passed the California Enhanced Smog Check with FLYING colors!

Smog Check Vehicle Inspection Report (VIR)

Vehicle Information

Test Date/Time: 10/15/2016 @ 12:39 PM

Model-Year: 1995	Make: MAZDA	Model: MIATA
License: 6MWR561	State: California	VIN: JM1NA3530S0611141
Engine Size: 1.80 L	Type: Passenger	Transmission: Manual
GVWR: 0	Test Weight: 2625	Cylinders: 4
Odometer: 126943	Certification: California	VLT Record #: 26599
Fuel Type: Gasoline	Exhaust: Single	Inspection Reason: High Emitter Profile (HEP)
		Engine Year: 0000

Overall Test Results

Congratulations! Your vehicle passed the enhanced Smog Check inspection, which helps California reach its daily goal of removing an extra 100 tons of smog-forming emissions from the air. Thank you for keeping your vehicle well maintained.

Comprehensive Visual Inspection: **PASS** Functional Check: **PASS** Emissions Test: **PASS**

Smog Check Certificate Number: **QE849873C**

DMV ID Number: **4986E210Q481**

Your Smog Check certificate will be electronically transmitted to DMV
Please keep this copy for your records

Emission Control Systems Visual Inspection/Functional Check Results

(Visual/Functional tests are used to assist in the identification of oxides of nitrogen, crankcase and cold start emission which are not measured during the ASM tests.)

<u>RESULT</u>	<u>ECS</u>	<u>RESULT</u>	<u>ECS</u>	<u>RESULT</u>	<u>ECS</u>
PASS-	PCV	N/A-	Thermostatic Air Cleaner	PASS-	Fuel Evaporative Controls
PASS-	Catalytic Converter	N/A-	Air Injection System	PASS-	Fuel Tank Cap Visual
PASS-	Visual EGR	PASS-	Ignition Spark Controls	N/A-	Carburetor
PASS-	Fuel Injection	PASS-	O2 Sensors and Connectors	PASS-	Wiring of Other
PASS-	Vacuum Line Connections	PASS-	Other Emission Related		Sensors or Switches
PASS-	Fuel Cap Functional	N/A-	Functional EGR	N/A-	Ignition Timing: TDC
PASS-	MIL	N/A-	Fill Pipe Restrictor	PASS-	Liquid Fuel Leaks
PASS-	Fuel Evap Test				

ASM Emission Test Results

Test	RPM	CO2 (%)		HC (PPM)			CO(%)			NO (PPM)			Results
		MEAS	MEAS	MAX	AVE	MEAS	MAX	AVE	MEAS	MAX	AVE	MEAS	
15 mph	1844	12.69	3.57	93	28	8	0.39	0.05	0.03	504	70	40	PASS
25 mph	2097	13.10	2.89	59	18	9	0.39	0.05	0.04	542	72	45	PASS

MAX = Maximum Allowable Emissions AVE = Average Emissions For Passing Vehicles MEAS = Amount Measured

Senna is running VERY clean! See how LOW the emissions are for HC, CO and NO compared to max!

With the prevalence of modifications by enthusiasts, Miatas have been tagged for years as 'High Emitter Profile' which requires a Test-Only inspection. Indeed, many older Miatas struggle to make emissions and often new catalytic converters plus other parts and labor are required – a bit headache to deal with every 2 years! Therefore, having a car that can pass smog this well is PRICELESS! It was always my intention to keep Senna as a street-legal track and autocross car. Being able to only use him off-road never felt appealing as our brand is about having your cake and eating it too – vehicles capable on the track but friendly on the street.

This factory (not aftermarket) 1.8 NA catalytic converter was obtained 2 years ago from a (clearly) well-maintained, low-mileage 1.8. You don't need me saying that – the smog results speak for themselves! Recipe for a clean engine: run your car at a few track days a year and do the required maintenance. There's lots of life left in this cat!



On that note, I came across a deal from a young college student who was planning to do a turbo build on his '95 Miata but needed to move parts from his parent's garage. Having done his research, he'd gathered several components to facilitate that process:

A 99 Miata head

An 04 Mazdaspeed Miata bottom end

An 04 Mazdaspeed Miata turbo system (exhaust manifold, downpipe, plumbing {for an NB Miata})

These parts are not in my hands yet but will be soon and will be included in Senna's sale. For someone interested in a higher-power track build, say with the Trackspeed Engineering 6258 turbo, various engine components can be combined to create a stronger normally-aspirated motor, or build a ferocious boosted beast.

Disclosure:

-Vehicle has rebuilt / salvage title due to a couple previous accidents that occurred in '09 and '10, then sold under a salvage title and repaired (prior to when I took ownership). On a 15-year old car, being 'totaled' for repairable damage is common. When I bought Senna (then Ron Burgundy), I took him to Auto Masters Body and Repair (5 stars on Yelp) in Belmont. George and his crew checked and pulled the frame square. The cage has added amazingly robustness and he feels better than most newer Miatas in terms of chassis rigidity. He's proven himself very reliable with the 5 track days and miles to/front events.

CarFax (I am the 4th owner):

CARFAX® Vehicle History Report™		US \$39.99
Vehicle Information: 1995 MAZDA MX-5 MIATA VIN: JM1NA3530S0611141 CONVERTIBLE 1.8L I4 FI DOHC 16V GASOLINE REAR WHEEL DRIVE	Branded Title: Rebuilt	
	Accident / Damage reported	
	4 Previous owners	
	11 Service history records	
	Types of owners: Personal lease, Personal	
	124,659 Last reported odometer reading	

This CARFAX Vehicle History Report is based only on [information](#) supplied to CARFAX and available as of 10/20/16 at 4:40:43 PM (EDT). Other information about this vehicle, including problems, may not have been reported to CARFAX. Use this report as one important tool, along with a vehicle inspection and test drive, to make a better decision about your next used car.



Conditions:

-Test drives offered to select, responsible adults with CASH on hand.

-Vehicle located in Redwood City, CA, call 650-839-0290 if you have additional questions, to schedule a visit, or inquire about a test ride or test drive.

-There are blemishes on the rear bumper and some clear-coat has come off the driver's side door and fender during removal of the wrap. For a 21 year old car, his paint exterior is overall in quite good condition.

Cost breakdown – Vehicle / Cage / Suspension / Hardtop / Wheels / Tires:

1. 'Senna', 1995 Mazda Miata M-Edition, 126,956 miles (avg 6k miles per year). Estimated cost to obtain a similar mileage / condition / well-maintained 1995 1.8L M-Edition Miata, \$4,000
2. Blackbird FabWorx 12-point Street Cage, intelligently design with 'wishbone' bends in upper cage tubing above driver / passenger to more safely allow for driving vehicle on the street / to events. Door bars angle downward for easier ingress/egress. \$4,030 (paid in 2012) including \$3,500 for the cage, \$500 for paint and \$30 for film on the door bars). SFI roll bar padding not in place but available to buyer.
3. FCM Elite coilover 3040 suspension with KBO and Ripple Reducer – base price of Elite coilover for Miata is \$2,202, \$400 for Ripple Reducer and \$1,600 for KBO v1.9. Included for new owner is \$1000 in 1 revalve (for all four dampers) plus main spring rate change {no charge for springs, value \$260 for 4 springs}, total \$4,202 plus \$1,000 free revalve plus \$260 new springs
4. 15x8 +25 Konig Flatout (\$110 each) wrapped with 205-50-15 Hoosier R6 (\$245) with 1 track day at Laguna Seca 2013, tires kept bagged since; \$1,420
5. 15x9 6UL Gen 1 (\$175 each) with 225-45-15 BFG Rival (\$143 each), currently on car; \$872
6. Hard top (black) with Garage Star hardtop brackets and security bolt kit (security Torx bolts) - \$1,100 + \$50 + \$30 = \$1,180

Total for above \$15,704 (includes \$1,260 for free revalve and 4 new springs at any time new owner requests)

Cost breakdown – additional purchased and custom machined parts and other modifications

7. Custom front splitter from ½" birchwood stock, sealed and painted from ¼" birchwood stock; solid and track-proven, with custom fabricated rear brackets (tie in to radiator support) and threaded-rod front support brackets, \$400
8. Kirkey Spec Miata driver's seat, with cover and helmet brace - \$310 + brackets customized to fit the Miata
9. DEKA ETX9 light-weight battery and custom bracket, \$65
10. Willans 5/6-point driver's harness, \$200
11. Driver and passenger air bags delete
12. 'Turbo Tuff' exhaust (on car), \$100
13. Test pipe (cat-less section to replace catalytic converter), \$85



14. Racing Beat Power Pulse exhaust and down-pipe, \$436
<http://www.racingbeat.com/Miata-1990-2005/Exhaust-90-97-Miata/PP-SPORT-90-95.html>
15. Racing Beat High Flow air intake kit, \$210
16. Racing Beat 4-2-1 header, \$448
<http://www.racingbeat.com/Miata-1990-2005/Exhaust-Headers/56006.html?id=UftiXvPM>
17. Porterfield R4S 'Spring' streetable track pads (designed for lighter vehicles), \$114, car stops solidly and has more effective rear braking vs. typical Miata front-bias on non-ABS cars. Used for 2 track days, several track days of life left.
<http://www.good-win-racing.com/Mazda-Performance-Part/61-1082.htm77>
18. Koyo 54mm race radiator - \$350 with new piping (installed 2012)
19. Heater core removed and bypassed
20. A/C condenser, compressor and piping removed – fan retained for secondary cooling (switched)
21. Custom Lexan (rare!) fan shroud (not installed but present), \$150
22. Used but serviceable OE catalytic converter and OE header currently installed, \$150
23. Custom Lexan window with Dzus fasteners, provides protection from the elements and reduces wind noise on the highway, \$300
24. ECU chip by Hideo (Bay Area tuner), \$150 (raised rev limit, better engine timing)
25. Garage Star license plate bracket, \$50
26. Garage Star side skirts, \$190
27. Redline MTL in transmission (~8,000 miles of street and track use)
28. Redline 75w90 in limited slip (~8,000 miles of street and track use)
29. Spec Miata 24mm front bar (OE 11mm rear bar) plus 949 Racing end links (\$70 per pair), \$270
30. ISC Racing Delrin front upper control arm offset bushing (set to maximum camber gain position, ~ -4 deg), excellent front contact patch compared to typical factory understeer with uncorrected geometry, has grease fittings already installed, \$98
<https://www.mazdamotorsports.com/webapp/wcs/stores/servlet/DisplayRacerStoryView?source=featuredProduct&uniqueId=3654&storeId=10001&catalogId=10001&langId=>
also <https://iscracing.net/suspension/>
31. R-pkg tie rod ends to reduce bump steer, \$140 per pair
<https://www.flyinmiata.com/r-package-tie-rod-ends.html>
32. Custom shims under steering rack to further reduce bump steer, \$150
33. Front wheel spacers 15mm (needed for 15x9 wheels to clear front upper shock mount), \$60
34. Wink rear mirror, \$30
35. Compact driver's side 'motorcycle' style mirror inside cockpit, \$12
36. Stock leather-wrapped driver's seat
37. New windshield, installed 10/17/16 - \$175

Additional parts included:

38. 1999 Miata head (with VICS, can be used with 94-97 bottom end for improved airflow over 94-97 head, especially for forced-induction), \$300
39. 2004 Mazdaspeed Miata bottom end with OE pistons (crankshaft not serviceable), \$200
40. 2004 Mazdaspeed Miata turbo system, OE turbo piping, intercooler, exhaust manifold / downpipe, stock Mazdaspeed boosts sensor, OE NB Mazdaspeed oil pan, \$1,000



Total for above \$4643 plus \$1500 for the additional engine parts.

Optional parts (available to purchaser of vehicle)

1. Custom adjustable wing assembly using circa 2008 Ciro Design Racing dual-element carbon fiber adjustable AOI wing, custom mounts, and 17.5" custom endplates as shown in first pictures is off the car and not included with vehicle purchase. The single element or dual-element is effective for moderate speed track at current AOI, dual-element for higher-downforce track or autocross applications (e.g. SCCA XP).

NOTE: Wing assembly is available ONLY in addition to vehicle purchase for \$1,200 (will not be sold separately).

2. Fat Cat Motorsports double-adjustable (independent rebound and compression) shortened body coil-overs. 1" shorter than standard Elite for very low ride heights. Valving will be based on new owner's goals. Regular price over \$4,000 for dampers, special offer is \$2,500. Dampers only, all other hardware available separately.

Estimated fabrication / shop labor breakdown:

41. Car interior removed / instrument cluster only / heater core removed & bypassed, timing belt, radiator, 160 deg thermostat, and water pump changed @ ~120,000 miles, 12 hours
42. Custom fitting / reinforcement of splitter with several iterations of splitter-to-chassis bracket, 10 hours
43. Gutting and cutting of doors metal, custom fitting of Lexan driver and passenger door windows with Dzus fasteners on window and inner door skin, 8 hours
44. Custom panel and switches for pop-up headlight, lights on/off, etc., 6 hours
45. Clocked tachometer with redline @ 12 o'clock, 2 hours
46. Fender cut and ready for wide wheel (15x9 or 15x10 no problem, up to 275 tires will fit), 8 hours
47. Customized and cut rear bumper / pre-diffuser to reduce drag (noticeable above 50mph!), 3 hours
48. Measured bump steer curve + labor and engineering analysis on bump steer curves (see above), 10 hours
49. Data acquisition and analysis to determine optimal suspension settings (ride height, alignment, spring rates, sway bars), 10 hours
50. Wrap previously pictured has been removed except for Brazilian flag on hardtop, included N/C

Estimated labor hours \$6900 (69 hours @ \$100/hr)

Items of note:

- The current Kirkey race seat will best fit a driver with a ~32-38" inseam and below 5' 10" height. Seat is fixed mounted to the floor pan for best helmet-to-hardtop clearance but can



be remounted forward or backward using existing slots on seat bracket. Driving position is close, but comfortable for me (5'10, 190 lb, 34" inseam).

- Using stock steering wheel, no horn, airbag removed. A quick-release steering would make ingress/egress a little easier but it's reasonable right now
- We have many photos taken during various stages of the build process which we're happy to provide to the new owner

Total material value \$22,834.

Total invested fabrication / race car prep / component installation labor \$6,900 (69 hours @ \$100/hr fabrication / race shop rate)

Total cost to reproduce (in form but not in spirit!) plus all parts and spares - \$28,747

Revalve and new springs included in this total cost. Double-adjustable coil-overs and dual-element wing not included but available at additional cost.

If you were me, what would you be willing to sell him for? \$ __ , __ _

Closing thoughts on the value of Senna, what he comes with, and possibilities for the future:

As you can tell, much careful thought went into selecting this particular year and option package as our premiere Miata flagship vehicle. We've made modifications to bring out the best character the Miata has to offer. Later cars and different engines offer more power, but the reliable and durable 1.8L Miata motor can be tracked with much less likelihood of failure than the NB motors often experience. In fact, Spec Miata racers are finding that the NB cars are sometimes more headache than they're worth and the earlier cars are experiencing a resurgence in Spec Miata and IT racing.

Physically duplicating the build would require purchasing a well-maintained early 1.8L (~\$4k), adding cage (\$4k), Elite coilover suspension (\$4k), hardtop / brackets / security bolts (\$1200), street wheels & tires (\$1000), I/H/E/ECU (\$1000), splitter (\$400), and track wheels & tires (\$1,300) which comes out to \$15,700. Senna already has the desirable and effective TorSen Type 1 limited-slip differential which is becoming harder to find as it was only available from 1994 to early 1995 on packages with the LSD. All other years either had the viscous (useless) or Type 2 (less effective / lower TBR). The additional modifications we performed to optimize him for track durability, maximum grip, and drivability at a lowered height total nearly \$5,000, back to approximately \$21,000 invested to have a safe, fast, and effective streetable track car. The maintenance costs on the Miata (tires and brakes) are the lowest of any possible car that would see track use. The engines (especially the early 1.6 and 1.8) are very stout. Nothing is more economical or reliable which is why Spec Miata is such a popular class! This car needs nothing and is ready for track use.



In driving the current setup without the wing, the car is very neutral and easily transitions between understeer and oversteer. For a beginning driver, the rear sway bar could be disconnected to induce more understeer and make him less 'edgy'. Also, the rear wing could be purchased and installed, giving adjustability to balance and helping plant the rear end at speed. The benefit of the full aero (front splitter currently on car with optional rear adjustable wing) is really an amazing feeling. You can take corner faster than your brain tells you and it's up to you to hold on and keep your right foot down! This car is INCREDIBLY fun at any speed!

You could drive the car at HPDE / open track / autocross, or set up for NASA TT (time trial) car. Would work as a TTD or TTC depending upon engine mods / power level, tire choice, and degree of aero used.

For example, Eric Powell's PTD national champion build, which uses an NB motor in an NA chassis:

<http://tinyurl.com/hyygznf>

Included in this sale is a '99 Miata cylinder head, an upgrade that will fit the '95 1.8L motor and widen the power band with the newer VICS technology. This is the 'head to have' for people who want an efficient yet cost effective upgrade from the NA 1.8. It's also an excellent piece if / when installing a turbo- or super-charger as it's more efficient than the 94-97 head.

You could also build more power via a turbo- or super-charged NA 1.8, drop in a LSx Chevy V6 or V8, do the popular S2000 motor swap, etc. The bodywork is ready to fit 275 wide tires and 15x9 or 15x10 wheels so the possibilities for a calm or wicked race car are endless!

If he's so great, why am I selling him?

We have been known as the top Miata suspension tuner for a long time. But even in the early days of FCM we had branched into other markets and have now made a name for ourselves as a premiere suspension tuner for ALL makes and models. I've driven Porsches, Subarus, Mitsubishi's, Hondas, Nissans, BMWs and others I've always compared each car to my first real love – the Miata. I often say "X is great, but if only it had double wishbone front suspension!" Cars with more power are very fun but the Miata rewards patience and planning ahead. It's very rewarding to pass a 'faster car'.

However, as I make use of our BMW sedan more and look to step into Porsche and Corvette markets, I don't see Senna getting the action he needs and deserves. Our BMW has become our new flagship and I've learned some subtle tuning techniques related to the front MacPherson strut geometry that I wouldn't have if I'd stuck with tuning double-wishbone suspensions. In fact, techniques I learned on the BMW have made their way back to Senna! I plan to acquire a Porsche next (likely an early 2000s Boxster S) and get more involved in that marque. My quest as expressed through Fat Cat Motorsports is to further my understanding of suspension design and optimization, and to enhance the capabilities of Fat Cat Motorsports. To further this goal, it feels like now is a good time to let Senna go to a home where he will be loved and appreciated and cared for as the very, very special embodiment of elegance and performance of his namesake. To me, he will always be part of the FCM family and I look forward to assisting his new owner with their goals, as long as it's about driving him not making him a garage queen!



Offers I would consider:

Trade for a comparable value Porsche 911, Porsche Boxster S, Porsche Cayman, Corvette Z06. In the case of a Porsche, only vehicles that have had the IMS retrofit performed will be considered.

Additional photos:

Senna's engine bay – stock exhaust manifold and catalytic converter currently installed

http://www.fatcatmotorsports.com/igallery/graphics/Senna_engine_bay.png

Racing Beat intake CARB EO sticker under hood next to emission control info

http://www.fatcatmotorsports.com/igallery/graphics/Senna_RB_intake_CARB_EO.png

Racing Beat intake letter and spare CARB EO sticker

http://www.fatcatmotorsports.com/igallery/graphics/Senna_RB_intake_new_sticker.png

Senna's interior (viewed from passenger side window)

http://www.fatcatmotorsports.com/igallery/graphics/Senna_interior.png

Driver side Lexan window

http://www.fatcatmotorsports.com/igallery/graphics/Senna_driver_Lexan_window.png

Passenger side Lexan window

http://www.fatcatmotorsports.com/igallery/graphics/Senna_passenger_Lexan_window.png

Senna gauge cluster / tach / odometer

http://www.fatcatmotorsports.com/igallery/graphics/Senna_gauge_cluster.png

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