

DRIVING LESSON: FRONT-WHEEL DRIVE

THE COMPLETE AUTOMOTIVE MAGAZINE • FEBRUARY 1980

MOTOR TRENDS

\$1.50
Canada
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ROAD TESTS:

BMW 320i TURBO

25TH ANNIVERSARY T-BIRD

\$9 MILLION ELECTRIC CAR

CROSS-COUNTRY TEST:

AUDI 5000 DIESEL



CONVERTIBLE CRAZE

New Generation
of Sunshine
Super Cars



Car of the Year

The First Winner of the
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Comparing Full-Size
2-Door Luxury



Toyota Targa







There are convertible cars and then there are convertible cars. Some are factory made; others are conversions costing \$40,000 or more.

Then there is Jack Griffith's Sunchaser. It is a convertible for the '80s, designed in sight of the trend and built with the expertise of an experienced specialty car hand: "Do R&D until it hurts, and then do it some more . . . use the highest quality and most sensible materials available . . . get the best engineers you can afford." Throughout this patchwork, Griffith has managed to provide what the prospective customer is looking for: a convertible for less than \$9000, with a full factory warranty and service at any one of 1050 Toyota dealerships.

Gee, Jack, you've really got a winner here: a play car that makes hard-work sense; a car that will still be around long after its creator isn't, which is how this all began. Griffith left the legacy of the Griffith sports car, a squatty little V-8-powered weevil that would do 0-60

in less than 5 seconds. But that was in the old days, before smog control and sports car decorum. Griffith bought spineless bodies from the TVR company in England, brought them here, installed 289 Ford engines and drivetrains, and for three rapacious years maintained a stranglehold on the leadfoot market.

But that sort of thing doesn't play well anymore, and so for the past two-and-a-half years, Griffith and industrial design engineer Dann Deaver have been fussing over their Toyota conversion.

The Sunchaser is really a GT or ST Toyota coupe with its top metal sabersawed away and replaced with a lift-off panel/cabriolet convertible. These two extensions are nestled into a handlaminated fiberglass crown that covers the raw metal edge, lends a great deal of structural rigidity to the body and makes for a very cosmetic finish. Naturally, all the underbody bases on the underside of the Sunchaser are covered with frame connectors and gusset plates (see sidebar).

The objects of the convertible maker are two-fold: to make the body at least as rigid as it was in the first place, and to keep all the wet stuff on the outside. Drive any convertible and you see and feel the flex in the chassis and hear the rattles that beget more rattles. These are inherent problems, but Griffith seems to have surmounted them in the Sunchaser. The lift-off panel is an important part of the structure, and it, combined with the targa hoop "cradle," allows the car to be almost as quiet as a stock ST.

In the wet, the Sunchaser will do just fine. Unless the downpour is something out of Southeast Asia, your jodhpurs will stay dry. The closest thing to the squall test in America is the automatic car wash, which failed to slip so much as a drop inside. And if the Toyota is wont to leak, says Griffith, seepage will occur in traditional places: over the Apillar (windshield) and on the flat of the deck.

On the road, the Sunchaser is as tight and as quiet as a hardtop. With the panel in its own

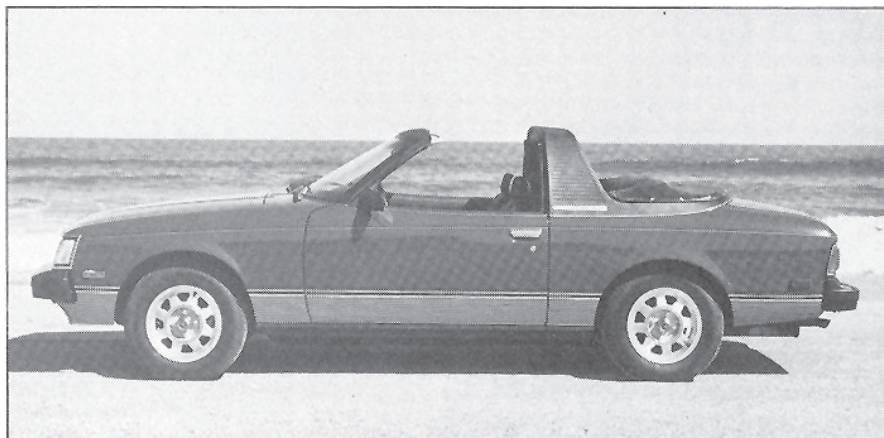
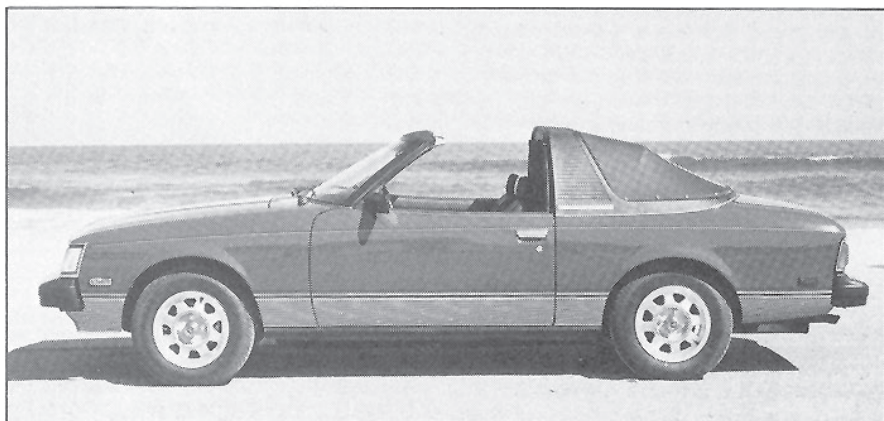
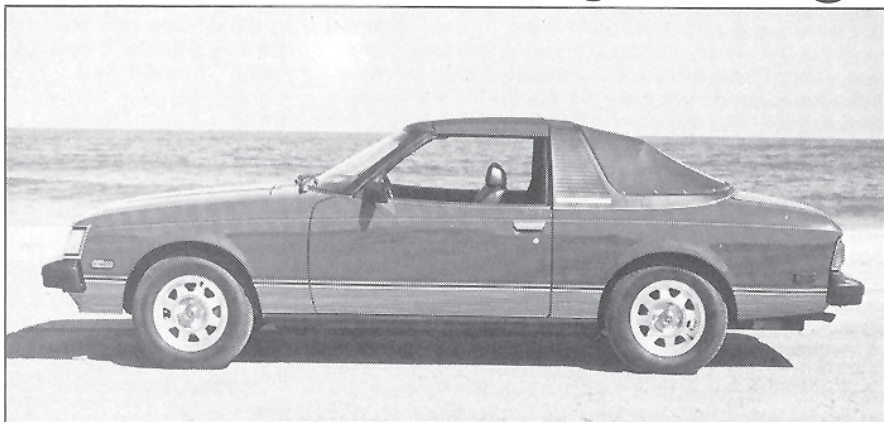
Toyota Targa

Just when you thought the day of the sensible, affordable convertible was gone forever

by Ro McGonegal
PHOTOS BY BILL CLAXTON



Toyota Targa



booty in the trunk and the windows up, there's not enough air disturbance to muss your hair or give reason to raise your voice. With the cabriolet at full rest and the panel still in the boot, there's plenty of action for unsprayed hair, but conversation stays the same; wind distress level at this point is about the same as if both side windows on a hardtop were rolled down. Nor were there any rattles.

Unless you accost a courduroy road or hit a pot hole large enough to hide in, the Sunchaser will refuse to bark, remaining as quiet as the Toyota it is. A service road provided a quota of surface irregularities and straightaways upon which we could ascertain the Sunchaser's abilities at speed. With both tops down, we cranked the car to a steady 80 and held, feeding the Toyota to the sweeping curves and feeling the full force of the wind about

Heavy Starch for an Open Collar

Cars that are made into convertibles have a nasty habit of squirming around unless they are braced or otherwise regrouped to regain most of their structural integrity. Griffith's Sunchaser conversion began with a solid Toyota GT or ST coupe, but when its top metal was cut away, it became as flacid as a tent without its poles. Failure to alleviate this problem led to flexing, which, in turn, promoted poor handling, erratic braking, the shakes, and all manner of interior and exterior misalignment.

Unit-construction vehicles, such as the Toyota, find their strength in the top as well as in the floorpan; so, when there is no top, the floorpan must be bolstered to handle more stress. Project engineer Dann Deaver (an industrial design and process engineer who developed the Borg-Warner CRV car, an all-thermoplastic structure) was called in on the case. He took Griffith's concept and designed the parts to make it work.

One-and-a-half years after the project's initiation, Deaver had composed a continuity for the Sunchaser made of 2x3/16 inch square tubing runners that connected to and overlapped the stock front and rear subframes. This allowed suspension loads to be carried all the way through the subframes. He then devised "scab" plates, which were contoured to the bottom of the floorpan and then welded to the subframes. The footwells were supported by another set of plates- 2x2x1/4-inch stock - which were also welded to the pan, but separate from the subframes. With the boiler-plate underbelly to keep it straight, Deaver turned to the question of the convertible top, using his extensive knowledge of fiberglass con-

FIND THE PRETENDER

<i>Convertible</i>	<i>Number of Seats</i>	<i>List Price</i>
Triumph Spitfire	2	\$7365
Fiat X1/9	2	\$7379
Fiat 2000 Spider	2	\$7931
MGB	2	\$7950
Griffith Sunchaser	4	\$8800-\$11,500
VW Rabbit	4	\$8895
Triumph TR7	2	\$9235
Lancia Zagato	4	\$10,811
Alfa Romeo Spider Veloce	2	\$12,545

our heads. The Sunchaser was as surefooted as the original.

The Sunchaser is an easier car to field strip than the Corvette ever was. The roof panel is snugged down by four lever clamps, one at each corner. You sort of stand to the side with the door open and use one long arm as support for the middle of the panel, so you can lift it off. The cabriolet is permanently anchored at the body, and its top lip is held to the targa hoop by three double-action clamps that make a tension-tight upper seal. Simply, the top folds nearly flat, and the boot attaches by a dozen or so conventional snaps. Even if you carry out the operation only once, you can pull it apart or put it together in less than three minutes. The aficionados, we are told, can do it in less

than one. However, even though the removable panel only weighs 14 pounds (about the same as one T-top glass hatch), it is wide enough to be awkward for a slight person. Wind can also be a foe in the right situation.

The convertible top, while causing zero problems in removal, poses a more insidious problem for the driver. It helps create a blind spot large enough to make the addition of a right sideview mirror mandatory. With it and some time spent with the beast, this inherent trait will just become something to live with. After all, this is a convertible.

We wanted to see and feel the Sunchaser's instrumented reactions, to know if the conversion had affected its performance and handling. With barely 70 miles on the clock, the

'Chaser's acceleration times were a bit slower than those of a stock ST. At first, we surmised that the extra weight of the conversion was the culprit, but Griffith said the car weighed the same and that its weight distribution remained the same as when the car was in its original configuration.

Braking times were comparable to those of the stock Celica, although the Sunchaser exhibited some tendency to grab hard and then make the transition to full lock on 60-0 stopping modes. Clearly, braking capability was not affected by the Toyota's open collar.

For last, we set up a slalom chute to see whether the thing would flex enough to pop off its top. Lord, we tried, but it didn't lose one inch of directional stability. Even with



struction techniques. Working with Griffith's part-panel-part-ragtop idea, Deaver devised a combination structural-reinforcement / cosmetic-looker / top attacher made from laminated fiberglass. 'These pieces were created by hand - still are - and entirely covered the raw metal edge, where the steel top once resided. Both the liftoff panel and the cabriolet convertible top were attached to this hoop, mak-

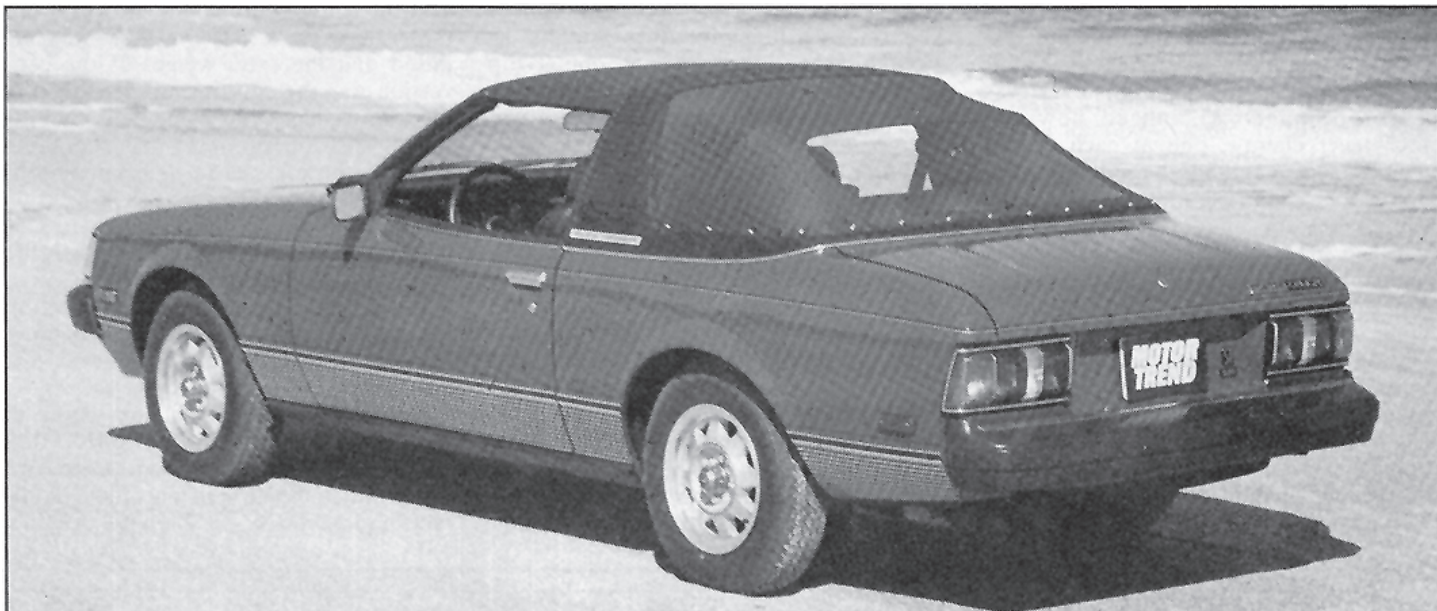
ing it, in effect, a self-contained unit.

Under the targa hoop there's more support. Deaver placed another section of 2x2-inch tubing over the passengers' heads, tying the sides of the Sunchaser together and lending a point of safety to the Toyota that traditional convertibles do not have (save for the Rabbit).

The windshield was also an area of structural concern. Thus, the steel top was removed

at the A-pillar, leaving a good-looking but mechanically unsound frame. Through the use of acrylic-modified adhesives and laminated fiberglass, the upper and interior windshield headers are permanently bonded together and then finish-surfaced in laminated vinyl. The result is a structure that a number of manufacturers could consider for their own device.

-RM



stickier tires and a special suspension (part of a turbo pack Griffith is toying with), we doubt that body flex will be of concern, at least in the short run.

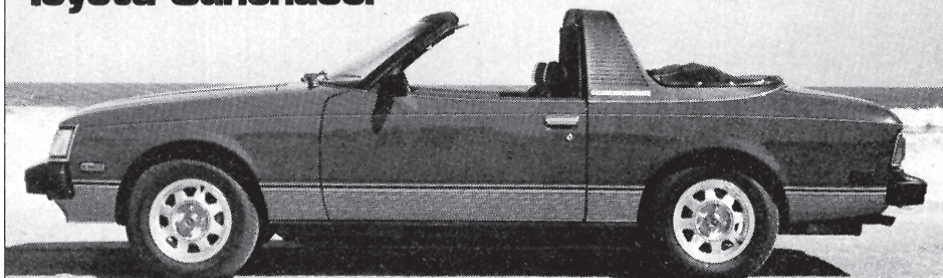
Now, money. There is a way to add a Sunchaser to your collection for less than nine grand. You get one of the low-ball 4-speed ST coupes (not available in California), equip it with the bare minimum (your luxury is going to be that folding top) and have the Sunchaser conversion applied for \$2995. You're home free for about \$8800. Even better, see your local Toyota dealer and ask whether he ever heard of Jack Griffith and the Sunchaser. If you're lucky, the guy will be one of Griffith's distributors; but even if he isn't, he can get a Sunchaser for you, complete. If he disavows knowledge of the Sunchaser or throws you out, contact Griffith immediately (3213 N. Ocean Blvd., Fort Lauderdale, FL 33308, telephone (315) 564-4866). If you are a raving hedonist with a proclivity for spending dollars, you can load a Sunchaser to its A-pillar with options and find a \$10,500-11,500 sticker.

Regardless of initial outlay, the Sunchaser appears to have all the right stuff. During its first week of inventory, the Gullo-Hass dealership in Houston, Texas, sold four of them. All to women. Three were completely satisfied. The fourth brought back her Sunchaser because it leaked. Gullo-Hass fixed the leak and hasn't seen her since.

But other people have, because the Sunchaser is highly visible, not easily mistaken as a product of some assembly line. For this reason, it is a special car, one that looks more expensive than it is. More important is how the Sunchaser makes you feel. If you're past your twenties, it will pull you right back to those late teen-age years, convincing you that you never missed a thing.

ROAD TEST DATA

Toyota Sunchaser



SPECIFICATIONS

GENERAL

Vehicle type	2-door, 4-pass. landau-convertible
Base price	N.A. (see text)
Options on test car	Sunchaser landau-convertible
Price as tested	N.A.

ENGINE

Type	inline four, water cooled, cast iron block, aluminum head, 5 main bearings
Bore & stroke	3.48 x 3.50 in.
Displacement	133.6 cu. in.
Compression ratio	8.4:1
Fuel system	2-bbl carburetor
Recommended fuel	Unleaded
Emission control	Catalyst
Valve gear	Overhead camshaft
Horsepower (SAE net)	90 at 4800 rpm
Torque (SAE net)	122 lb.-ft. at 2400 rpm
Power to weight ratio	27.6 hp/ton

DRIVETRAIN

Transmission	5-speed manual
Final drive ratio	3.58:1

DIMENSIONS

Wheelbase	98.4 in.
Track, F/R	53.1/53.7 in.
Length	176.5 in.
Width	64.4 in.
Height	51.2 in.
Ground clearance	6.7 in.
Curb weight	2480 lb.
Weight distribution, F/R	53.8/47.2%

CAPACITIES

Fuel capacity	16.1 gals.
Crankcase	5.3 qts.
Cooling system	7.4 qts.

SUSPENSION

Front	MacPherson strut w/anti-roll bar
Rear	Solid axle, 4-link, coil springs, tube shock absorbers, Panhard rod

STEERING

Type	Recirculating ball
Turns lock-to-lock	4.6
Turning circle, curb-to-curb	36 ft.

BRAKES

Front	10-in. solid discs, power assist
Rear	9-in. drums, power assist

WHEELS AND TIRES

Wheel size	14 x 5.5 in.
Wheel type	Cast aluminum
Tire make and size	Bridgestone 185/70HR-13
Tire type	Steel radial
Recommended pressure, F/R	24/24 psi

TEST RESULTS

ACCELERATION

0-30 mph	3.3 secs.
0-40 mph	5.3 secs.
0-50 mph	8.2 secs.
0-60 mph	11.8 secs.
0-70 mph	16.0 secs.
0-80 mph	N.A.
Top speed	102 mph
Standing quarter mile	18.85 secs., 71.90 mph
Passing times (40-60 mph)	6.5 secs.
(50-70 mph)	7.8 secs.

BRAKING

30-0 mph	41 ft.
60-0 mph	165 ft.

FUEL CONSUMPTION

EPA city	21 mpg
MT 73-mile test loop	N.A.

SPEEDOMETER

Indicated	30 40 50 60
Actual mph	31.5 42.5 51.5 61