

Parametric Comparison:

Parameter	2 dr UN46		4 dr UN46		'89 BII		5-Blaz(4x4)		Path/For
	4x2	4x4	4x2	4x4	4x2	4x4	Std	Opt	4x4
Engine Disp.	4.0L	4.0L	4.0L	4.0L	2.9L	2.9L	2.8L	4.3L	2.9L
Horsepower	170	170	170	170	140	140	125	160	139
Curb Weight	3576	3791	3719	3907	3278	3371	3217	3267	3715
HP/Weight	.0475	.0448	.0457	.0435	.0427	.0415	.0389	.0490	.0374
Overall Str Ratio	19:1	19:1	19:1	19:1	19:1	19:1	20:1	20:1	20:1
Wheelbase	102.1	102.1	111.9	111.9	94.0	94.0	100.5	100.5	104.3
MI/Tan(20°/Str.Ratio)	463.0	463.0	507.5	507.5	426.3	426.3	479.8	479.8	497.9
Avg. Track Width	58.1	58.3	58.1	58.3	56.9	56.9	55.8	55.8	55.8
C.G. Height (curb)	26.9	*	*	27.9	27.5	26.7	25.7	25.7	26.3
Stability Index	2.16	*	*	2.09	2.07	2.13	2.17	2.17	2.11
Versace Metric $\theta$	.3492	*	*	.3454	.3760	.3850	.3499	.3454	.3447
Roll Gain (%/g)	*	*	*	*	N/A	3.7	6.9(e)	N/A	9.0
U/steer @ .3g (%/g)	*	*	*	*	N/A	4.4	4.2	N/A	3.2
U/steer @ .6g (%/g)	*	*	*	*	N/A	19.8	24.6	N/A	9.8

\* : Measurements in process.  $\theta$ : Versace Metric =  $(H/(TeL)) \times (e)$ Analysis Status:

ADAMS Results on the 2 dr. 4x4 and 4 dr. 4x2 predict two wheel liftoff in J-Turn @ 55 mph with P225/70 and P245/70 A/S tires (criteria is no more than one wheel lift). This results from a higher than expected CG, high cornering capability of the larger 70-series tires, and a reduced side-view inclination of the roll axis (due to underslung rear suspension). Changes are being considered in "rise-to-curb", stabilizer bar rates, option content, and steering/suspension geometry & compliance to provide acceptable performance.

Test Status:

Track handling on early prototype vehicles has demonstrated front wheel lift under a variety of sub-limit (<7 g's) conditions. Testing of EP vehicles will begin the week of 11/28 in Florida. ADAMS derived fixes will be evaluated during this evaluation. Performance equal to or better than the BII is the objective.

FARS Analysis ... Effect on UN46 Development:

Our analysis of FARS results indicates no propensity for the BII to rollover under "on-road" handling-induced maneuvers. Our analysis of 129 FARS accident reports revealed only 1 rollover that could have been handling-induced (appears to have resulted from a series of rapid lane changes at high speed). In the majority of remaining on-road incidents, the vehicle entered the paved surface already "out of control", severely yawing or sliding across the road surface (typical for all utility vehicles). We have concluded that our current stability criteria are adequate and will be used, as is, for the UN46.

Because the majority of FARS incidents occur when the vehicle is sliding sideways and trips, ejecting unrestrained occupants, the major handling focus to reduce FARS must be to keep the vehicle axis parallel to the direction of travel. The BII was developed to take advantage of its short wheelbase and provide a highly responsive and maneuverable vehicle. Recognizing that many of the FARS incidents occur with inexperienced drivers with high blood alcohol levels, this maneuverability that was intended to allow a driver to avoid an accident may result in "overcorrection" and loss of control for the typical FARS driver. The following comparison of the UN46 and BII illustrate a change in handling strategy that we believe will have a favorable impact on FARS.

Model	Response	Cornering Capacity	Body Roll
BII	Moderate understeer for good response and minimal tire "squeal". Develop for high speed through lane change pylons.	Maximize for good accident avoidance capability and fast "lap times" on handling track.	Minimize for "flat" feel and high cornering confidence. Enhances "dynamic" stability index.
UN46 (current)	Same - Some reduction expected due to change in wheelbase.	Same - Increase vs. BII expected due to larger, more powerful tires.	Same - May be limited by capability of FESM structure.
UN46 (proposed)	Increase understeer in all conditions to promote slightly less "neutral" feel and increase warning from front tires. Will reduce speed through pylons.	Not to exceed current BII levels. Limit Capacity with larger tires through suspension revisions.	Increase body roll to 9-Blazer levels. This will improve off-road ride but will decrease D.S.I.. Decrease cornering confidence to discourage aggressive driving.

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