

## UN46 ANALYSIS

Listed below are the hardware improvements on UN46:

Front Wheel Rates	Increased 16% (135 TO 191)	RANGER springs
Rear Wheel rates	Increased 30% (135/265 to 178/273)	
Front Sta Bar	1" (may be reduced to 15/16)	
Rear Sta Bar	3/4 TO 5/8 pending final front bar	
Ride Heights		
Front	No Change	
Rear	Reduced by .5 in. (3.3 TO 2.8)	
Tire line up	No Change	

The improvements in stability are shown in ATTACHMENT I

ADAMS criteria have been met for the Two Door (Worst Case) 4X4 and 4X2 on 225 tire. At 35psi the ADAMS criteria is not being met with the 245 and 235 tire. There is good subjective correlation with ADAMS analysis on the 225 tires; therefore, we expect to get a favorable ADAMS analysis for 245 tires at 26 psi. Initial ADAMS analysis with estimated tire coefficients for the 245 tire at 26 psi will be complete mid-February --Final analysis is scheduled by the end of February with CALSPAN data.

### OPEN ISSUES

The use of High Performance tires, such as the Firehawk instead of the released 225 FR480 tire will result in poor performance based on subjective and ADAMS predictions.

Similar performance issues occur with the 235 and 245 tires at 35 psi. The 4 door, due to its longer wheel base is more tolerant of these tires than the 2 door.

In both cases the outside front tire does not saturate and very high cornering loads can build up. with lower pressure in the large tires of with the FR480 225 tire, the tires saturate and increase understeer.

EXP4 1334

**UN-46 TIRE PRESSURE LIMITATION**

**LOAD**

	<u>MAX AXLE LOAD</u> 35 psi	<u>TIRE CAPACITY</u> 26 psi	<u>EXCESS</u>
UN-46 P245 & P235	2900 (REAR)	3686	3186 286 @ 26 psi
BII P205	2750 (FRONT)	2905	155

Position: At 26 psi the UN-46 has more excess capacity than the current BII @ 35 psi

**WEAR**

88 BII P205	88½ BII P205	90½ UN-46 P245 35 psi 26 psi
BASE →	+ 12½ →	+ 16½ 03/15/89

Position: Wear at 26 psi is expected to deteriorate slightly

**RR CAFE**

Total RL HP			
88½ BII P205		90½ UN-46 P245 35 psi	26 psi
4X2	15.4	16.7	17.1 est.
4X2	16.1	17.9	18.3 est.

Position: The increase in total RLHP is projected to be 0.4 which could be recovered from the lowering of the vehicle.

**CUSTOMER WARNING**

To assure that the customer is aware of pressure limitations an additional tire pressure label (similar to those used in passenger cars) attached either to the glove box door or B pillar is being proposed. The owner's manual and other customer literature like "4-Wheeling" is being upgraded to emphasize correct tire pressure. Similar situations exist today in station wagons where pressure splits front to rear are necessary for handling. The Nissan Pathfinder and Nissan Partol also call for tire pressures significantly lower than the maximum allowed.

Position: The adequacy of the added labeling is being reviewed with OGC and ASO on February 6, 1989

ms  
trprslmt.rjb

## STABILITY INDEX

	<u>4X4</u>	<u>4X2</u>
UN46 2DR	2.17 <i>14.3</i> <i>26.7</i>	2.17 <i>2.09</i>
UN46 4 DR	2.17	2.16
BRONCO II	2.13	2.07

## ADAMS ANALYSIS

The detail on the next page indicates that UN46 is more understeering than the Bronco II (6.42 deg/G for UN46 vs 4.86 for BII).

The UN46 has slightly more roll than BII (6.5 DEG/G vs 5.1 DEG/G)

During Transient maneuvers, one front tire lifts and there was approximately 200 lbs on the inside rear tire. Lateral acceleration of .75 G'S was achieved during the transient maneuvers.

With the high performance tires, much greater lateral acceleration and consequently two wheel lift was noted.