



## Technical Service Bulletin

Date: 10/04/2005

Product Description: **AMSOIL Severe Gear Synthetic 75W-90 (SVG)**

Subject: **2002-2005 GM QS4 Quadrasteer Steerable Rear Axles**

### OBJECTIVE:

To define the GM QUADRASTEER system and the best suited AMSOIL gear oil for that application.

### ISSUES:

There is confusion as to which lubricant to recommend in the GM QUADRASTEER differential. GM says in their owners manual, (Reference 1) "Do not add friction modifier" to the QUADRASTEER differential, however all QUADRASTEER differentials contain limited slip clutches. This poses a question regarding the correct lubricant recommendation.

### TECHNICAL DISCUSSION:

GM designed trucks with a four-wheel steering system called QUADRASTEER. QUADRASTEER combines front wheel steering with electrically powered rear-wheel steering, dramatically enhancing low-speed maneuverability, high-speed stability, and trailering capability for GM vehicles. QUADRASTEER systems are only offered in non-heavy duty gasoline truck models.

There is some confusion as to the correct gear lubricant to use. Owners manuals, (Reference 1) and Motor Information Systems 2004 Car Care Guide (Reference 2) states, "Do not add friction modifier". GM factory fills the vehicles with fluid meeting GM Specification # 9986207. This GM specification is an SAE 75W-90 synthetic gear lube without friction modifiers (Reference 3). GM adds

their own friction modifier Specification #9985412 (Reference 4) to the factory fill oil Specification # 9986207.

The GM part numbers available for service fill are #12378557 (USA) or #88901362 (Canada), for specification #9986115 (reference 5). These service fill oils are also SAE 75W-90 synthetic gear lubes and contain all the friction characteristics necessary to meet limited slip performance requirements.. (Reference 5).

The reason owners manuals, and Motor Information Systems both print the statement, "Do not add friction Modifier" is that GM specification #9986115, part #12378557 (USA) or #88901362 (Canada) have the limited slip friction characteristics already in the formula, (Reference 5) and the addition of friction modifiers are not needed. These part numbers are recommended because all QUADRASTEER systems are limited slip type systems.

### RECOMMENDATION:

AMSOIL Severe Gear Synthetic 75W-90 (SVG) contains all limited slip characteristics required by Dana for QUADRASTEER differentials. AMSOIL Severe Gear Synthetic 75W-90 is recommended for GM specification #9986115 and should be used as a replacement for GM part numbers #1238557 (USA), or #88901362 (Canada).

AMSOIL limited slip additive (ADA) should only be added if differential chatter occurs.

Submitted By: KD

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Approval Date: 10/04/2005

Distribution: \_\_\_ Internal X All

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TSB: DT-2004-07-01

Revision : 10/04/2005



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<b>GM Factory Fill</b>	<b>GM Service Fill</b>	<b>AMSOIL SVG Recommendation</b>
#9986207 Non-Friction Modified. plus #9985412 Friction Modifier	GM Part # 12378557 (USA) 88901362 (Canada). GM Specification 9986115 Friction modifiers are included in the formula.	SVG for GM Part # 12378557 (USA) 88901362 (Canada). SVG for GM Specification #9986115. Friction modifiers are included in the formula.

### REFERENCES:

1. General Motors Owners Manual, 2003 Denali with steerable rear differential.
2. Motor Information Systems, Car Care Guide, 2004 Edition, page 41
3. Dana Torque Traction Technology, Technical Support Department, Holland, OH., Mr. Bob Scott.
4. General Motors Engineering Standards, Rear Axle Friction Modifier, Specification #9985412, April 1989.
5. General Motors Engineering Standards, Fuel-Efficient Hypoid Gear Lubricant, Specification #9986115, December 2003

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