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Fuel System Integrity Subgroup Meeting

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TECHNICAL DISCOVERY

2/14/2005

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Development of a CASE THEORY

What is(are) the Defect(s) in the product?

- ◆ What failed and why?

How can it be fixed?

ALTERNATIVE DESIGN(S)

THE CASE THEORY(S), ALTERNATIVE DESIGNS AND DISCOVERY

Consider your CASE THEORY and ALTERNATIVE DESIGN when writing your discovery.

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Include Definitions of Technical Terms, from SAE, Engineering manuals, (Magee: underbody, fuel tank shield, failure mode and effect analysis, frame hitch)

Development of the “subject vehicle” and the defective component part(s) Establish who manufactured and designed the subject vehicle and subject component parts? Get all subsets (reports, meeting minutes, testing, design drawings, etc.) for prototype, pilot, production vehicles (Magee: 1968--1st skid plate on GM truck)

Need history of your vehicle platform, dates,
platform names (Magee: “B” body
development vehicle-- to “A” body to “G”
body back to “A” body)

Manufacturer's Testing of vehicles subject and development testing of previous body platform (Magee: 1967-71 GM crash testing of Corvette) angles of impact for crash testing; relate to your CASE THEORY, Test Incident Reports (Magee: Ground Clearance Testing)

Design Documents (Magee: Theory-- Design Defect) Need: 1. Product Plan Books 2. Assembly Manuals 3. Drawings (Installation, Assembly, Design, Layouts) for all vehicles that relate to the development + production platform of the subject vehicle 4. Manufacturing Specs. 5. Material Specs. (Magee: Cost savings--stock of fuel tank metal reduced and then increased) 6. Alternative material specs. considered? 7. Engineering reports, handwritten notes and engineering analysis

Manufacturer's Design Criteria and Internal Standards

- ◆ Test Specifications (Magee: 1969 30 mph rear barrier testing became design directive, Fuel system integrity standards established)

Failure Mode and Effect Analysis for your defective component part (s)--Relate to your CASE THEORY

- ◆ need related documents and reports, notes, memos, and internal correspondence

Engineering Change Requests, Work Orders and Engineering Change Orders
(Magee: Fuel tank contour revised, enclosure of fuel tank requested)

Manufacturers Analysis of the Subject Vehicle Design (development and production versions) (Magee: Ground Clearance Testing, fuel tank capacity, tank fit) Need: 1. Memos, meeting minutes, meeting agenda, reports, presentations reports, meeting minutes, testing, design drawings, etc 2. Committees--names of committees and members and positions (Magee: Fuel Tank Coordination Committee, GM Fuel System at Oldsmobile Division, GTC Fuel Tank Evaluation Comm. 1971) 3. Dates 4. Computer generated analysis

Patents--for the component part (s) related to your CASE THEORY

- ◆ Development and subject vehicles

Use of the defective component part(s) by manufacturer in other vehicle platforms or product lines (Magee: Full Fuel Tank Shield used in 1978 GM Blazer, Suburban fuel tank shielded)

- ◆ Retrofit for other vehicles

Manufacturer's Export of subject or development vehicle

- ◆ Design differences
- ◆ Standards applied
- ◆ Testing

Field Accident Data, Complaints relating to your CASE THEORY and the component part(s) effected (Magee: OSI's, GM 1241 reports, Collision Performance Injury Reports, dealer complaints, lawsuits

Dealer Service Bulletins, Technical Service Bulletins and Recalls

Manufacturer's Organization organization
charts 1) names+ positions, dates 2)
Telephone Directories 3) Divisional Charts
and Phone Directories

Manufacturer's Internal and External
Research RSV/ESV Experimental
Programs NHTSA Rule making--docket
comments Professional publications by
manufacturer's employees Testimony of
manufacturer's experts and/or employees in
other cases Manufacturer testing (Magee:
Plastic shields, fuel tank location study)

Cost Analysis Defective part vs. Alternative design (Magee: Ivey memo, cost/safety benefit analysis to exceed MVSS requirements re: GM internal standards)

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Technical Discovery Outside of the Manufacturer

- ◆ AIEG Networking
- ◆ NHTSA Standards and Testing
(Magee: FMVSS bumper standard, rear impact testing)
- ◆ IIHS
- ◆ Center For Auto Safety
- ◆ SAE Publications,
Recommended Standards
- ◆ Professional Organizations--
publications (ASM, ASME)

Technical Discovery Outside of the Manufacturer

- ◆ Other Manufacturers--How do they apply your ALTERNATIVE DESIGN THEORY? When was it implemented? (before or after your subject vehicle build date?)
- ◆ Vendors
- ◆ Testing--QUANTIFY YOUR CASE THEORY and test the validity of your ALTERNATIVE DESIGN

Test above defendant's quantification
(speed, delta V) Test to a published
standard (Magee: Test at low Delta V but
higher than defendant's --show no fuel tank
penetration)