GENERAL MOTORS NORTH AMERICA
Structure & Safety Integration

December 12, 2003

Richard P. Boyd, Chief
Medium & Heavy Duty Vehicle Division
Office of Defects Investigation
NHTSA Safety Assurance
Room #5319
400 Seventh Street, S.W.
Washington, D.C. 20590

GM-646

NVS-214grb
PE03-049

Dear Mr. Boyd:

This letter is General Motors' (GM) response to your information request (IR), dated October 24, 2003, regarding tailgate support cables in 1999 - 2003 model year Silverado vehicles.

As a result of conversations with Mr. Tom Bowman of your staff, the subject vehicles of this inquiry are 1995 - 2004 model year full size (C/K) pickup and sport utility trucks (hereafter referred to as pickup trucks).

Please note, GM has responded to all questions and renumbered them consecutively 1-28. (Your letter inadvertently omitted question 24)

Your questions and our corresponding replies are as follows:

1. **Identify, by model and model year, the number of subject vehicles (i.e. vehicles equipped with tailgate support cables identical or similar to 1999-2003 Model Year Silverado pick up trucks) that GM has manufactured for sale or lease in the United States.**

   General Motors is providing the number of subject vehicles produced for sale or lease in the United States by model and model year in Table 1 below:

MODEL YEAR	Chevrolet Silverado	GMC Sierra	Chevrolet Avalanche	Cadillac Escalade EXT	TOTAL
1995	562,031	188,818	0	0	750,849
1996	439,887	146,348	0	0	586,235
1997	511,100	166,301	0	0	677,401
1998	539,318	167,175	0	0	706,493
1999	546,584	183,611	0	0	730,195
2000	745,103	226,343	0	0	971,446
2001	628,680	183,627	0	0	812,307
2002	646,413	197,068	126,434	12,513	984,428
2003	709,703	193,411	88,181	11,131	1,000,426

Product Investigations
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GM646 Response.doc

2004	254,657	76,366	31,465	2,602	365,090
TOTAL	6,591,476	1,729,069	246,060	26,246	7,582,870

* FOR 2004 MODEL YEAR THE VEHICLE PRODUCTION IS THRU NOVEMBER 6, 2003

TABLE 1

2. For each subject vehicle manufactured to date by GM, provide the following:

(a) Vehicle identification number (VIN);
(b) Make;
(c) Model;
(d) Model Year;
(e) Date of manufacture;
(f) Part number(s) of the tailgate support cables installed;
(g) Date warranty coverage commenced; and
(h) The State in the United States where the vehicle was originally sold or leased (or delivered for sale or lease).

Provide the table in Microsoft Access 2000, or a compatible format, entitled "REQUEST NUMBER TWO - PRODUCTION DATA." See Enclosure 2, Data Collection Disc, for a pre-formatted table that provides further details regarding this submission.

The production information requested in 2a-2h is provided on the CD in Attachment 1; refer to the Microsoft Access 2000 file in the folder labeled "REQUEST NUMBER TWO - PRODUCTION DATA". The GM database that contains Vehicle Identification Number (VIN) information does not include information on the state where an individual vehicle was sold. GM is providing the state where the vehicle was shipped in response to request 2h. For some of the subject vehicles, which have incomplete warranty files, the GM warranty system does not contain a warranty start date or state where the vehicle was shipped and therefore these fields are blank in the Microsoft Access 2000 file.

The tailgate support cable part numbers installed on the subject vehicles are indicated in Table 2.

Model Year	Model	VIN position 11	Part Number
1995 - 1998	Silverado/Sierra	Z, 1, E, F	15673251
1999 - 2000	Silverado/Sierra	R, G, F	15673251
1999 - 2002 (produced before 1/1/2002)	Silverado/Sierra	Z, E, 1	16637944/45
2002 (produced before 1/1/2002)	Avalanche/Escalade EXT	G	16637944/45
2002 - 2004 (produced between 1/1/2002 and 10/1/2003	Silverado/Sierra/ Avalanche/Escalade EXT	Z, E, 1, G	88892972/73
2004 (produced after 10/1/2003	Silverado/Sierra/ Avalanche/Escalade EXT	Z, E, 1, G	88980509/10

Pontiac East = E, Oshawa = 1, Ft. Wayne = Z, Flint = F, Arlington = R, Silao = G

TABLE 2

3. State the number of each of the following, received by GM, or of which GM is otherwise aware, which relate to, or may relate to, the alleged defect in the subject vehicles:

(a) Consumer complaints, including those from fleet operators;
(b) Field reports, including dealer field reports;

(c) Reports involving an injury or fatality, based on claims against the manufacturer involving a death or injury, notices received by the manufacturer alleging or proving that a death or injury was caused by a possible defect in a subject vehicle, property damage claims, consumer complaints, or field reports;
(d) Reports based on claims against the manufacturer involving a death or injury, notices received by the manufacturer alleging or proving that a death or injury was caused by a possible defect in a subject vehicle, property damage claims, consumer complaints, or field reports;
(e) Property damage claims; and
(f) Third-party arbitration proceedings where GM is or was a party to the arbitration; and
(g) Lawsuits, both pending and closed, in which GM is, or was, a defendant or codefendant.

For subparts "a" through "d," state the total number of each item (e.g., consumer complaints, field reports, etc.) separately. Multiple incidents involving the same vehicle are to be counted separately. Multiple reports of the same incident are also to be counted separately (i.e., a consumer complaint and a field report involving the same incident are to be counted as a field report and a consumer complaint).

In addition, for items "c" through "g," provide a summary description of the alleged problem and causal and contributing factors and GM's assessment of the problem, with a summary of the significant underlying facts and evidence. For items "f" and "g," identify the parties to the action, as well as the caption, court, docket number, and date on which the complaint or other document initiating the action was filed.

Table 3-1 below summarizes records that could relate to the subject condition. A summary of the non-privileged information related to the product liability lawsuit cases is provided in Attachment 3F.

Type of Report	Count (Including Duplicates)	GM Reports	GM Reports Corresponding to NHTSA Reports	Location of Reports (Attachment)	Number with Property Damage	Number with Injuries/ Fatalities*
Owner Reports	323	320	3	3A	0	9
Field Reports and Technical Assistance System Reports	98	95	3	3B	5	88
Not-In-Suit Claims	35	33	2	3C	2	37
Subrogation Claims	0	0	0	N/A	0	0
Third Party Arbitration Proceedings	0	0	0	N/A	0	0
Product Liability Lawsuits	4	4	0	3F	0	4
Total (Including Duplicates)	460	452	8	N/A	7	118
Total (Excluding Duplicates)	430	424	6	N/A	6	88

Table 3-1: Report Breakdown

N/A Not Applicable
* GM is not aware of any fatalities related to the subject condition.

The sources of the requested information and the last date the searches were conducted are tabulated in Table 3-2 below.

Source System	Last Date Gathered
Corporate Central File	11/20/2003
Customer Assistance Center	11/17/2003
Technical Assistance Center	11/17/2003
Field Information Network Database (FIND)	11/10/2003
Company Vehicle Evaluation Program (CVEP)	11/10/2003
Captured Test Fleet (CTF)	11/10/2003
Early Quality Feedback (EQF)	11/10/2003
Field Product Report Database (FPRD)	11/10/2003
Legal / Employee Self Insured Services (ESIS)	11/17/2003

Table 3-2: Data Sources

4. Separately, for each item (complaint, report, claim, notice, or matter) within the scope of your response to Request No. 3, state the following information:

(a) GM's file number or other identifier used;
(b) The category of the item, as identified in Request No. 3 (i.e., consumer complaint, field report, etc.);
(c) Vehicle owner or fleet name (and fleet contact person), address, and telephone number;
(d) Vehicle's VIN;
(e) Vehicle's make, model and model year;
(f) Vehicle's mileage at time of incident;
(g) Incident date;
(h) Report or claim date;
(i) Whether property damage is alleged;
(j) Number of alleged injuries, if any; and
k) Number of alleged fatalities, if any.

Provide this information in Microsoft Access 2000, or a compatible format, entitled "REQUEST NUMBER FOUR – PERFORMANCE DATA." See Enclosure 2, Data Collection Disc, for a pre-formatted table that provides further details regarding this submission.

The requested information is provided on the CD in Attachment 1; refer to the Microsoft Access 2000 file in the folder labeled " REQUEST NUMBER FOUR – PERFORMANCE DATA."

5. Produce copies of all documents related to each item within the scope of Request No. 3. Organize the documents separately by category (i.e., consumer complaints, field reports, etc.) and describe the method GM's used for organizing the documents.

Copies of the records identified in Item 3 are provided in the attachments listed in Table 3. GM has organized the records by the GM file number within each attachment.

6. State, by model and model year, a total count for all of the following categories of claims, collectively, that have been paid by GM to date that relate to, or may relate to, the alleged defect in the subject vehicles: warranty claims; extended warranty claims; claims for good will services that were provided; field, zone, or similar adjustments and reimbursements; and warranty claims or repairs made in accordance with a procedure specified in a technical service bulletin or customer satisfaction campaign.

Separately, for each such claim, state the following information:

(a) GM's claim number;
(b) Vehicle owner or fleet name (and fleet contact person) and telephone number; VIN;
(c) Repair date;
(d) Vehicle mileage at time of repair;
(e) Repairing dealer's or facility's name, telephone number, city and state or ZIP code;
(f) Labor operation number;
(g) Problem code;
(h) Replacement part number(s) and description(s);
(i) Concern stated by customer; and
(j) Comment, if any, by dealer/technician relating to claim and/or repair.

Provide this information in Microsoft Access 2000, or a compatible format, entitled "REQUEST NUMBER SIX - WARRANTY DATA." See Enclosure 2, Data Collection Disc, for a pre-formatted table that provides further details regarding this submission.

The 78,621 regular warranty claims and 3,641 extended warranty claims for the subject vehicles that may be responsive to this request, are summarized by model and model year in Tables 6A - 6D.

Regular Warranty Claims for Right Cable Replacement (Labor Code B5750)

MODEL	1995 MY	1996 MY	1997 MY	1998 MY	1999 MY	2000 MY	2001 MY	2002 MY	2003 MY	2004 MY
Chevrolet Silverado	452	842	1847	2216	2400	9579	10433	4887	637	6
GMC Sierra	177	325	646	708	878	2979	3072	1427	161	1
Chevrolet Avalanche	0	0	0	0	0	0	0	1221	9	0
Cadillac Escalade EXT	0	0	0	0	0	0	0	38	4	0

TABLE 6A

Regular Warranty Claims for Left Cable Replacement (Labor Code B5751)

MODEL	1995 MY	1996 MY	1997 MY	1998 MY	1999 MY	2000 MY	2001 MY	2002 MY	2003 MY	2004 MY
Chevrolet Silverado	451	772	1554	1908	2057	8061	8823	3816	440	3
GMC Sierra	173	293	554	609	783	2492	2804	1137	125	1
Chevrolet Avalanche	0	0	0	0	0	0	0	1174	6	0
Cadillac Escalade EXT	0	0	0	0	0	0	0	32	4	0

TABLE 6B

Extended Warranty Claims for Right Cable Replacement (Labor Code B5750)

Model	1995 MY	1996 MY	1997 MY	1998 MY	1999 MY	2000 MY	2001 MY	2002 MY
Chevrolet Silverado	41	104	229	251	106	238	162	51
GMC Sierra	16	38	96	77	128	215	95	16
Chevrolet Avalanche	0	0	0	0	0	0	0	39
Cadillac Escalade EXT	0	0	0	0	0	0	0	0

TABLE 6C

Extended Warranty Claims for Left Cable Replacement (Labor Code B5751)

Model	1995 MY	1996 MY	1997 MY	1998 MY	1999 MY	2000 MY	2001 MY	2002 MY
Chevrolet Silverado	49	82	228	240	99	201	138	49
GMC Sierra	16	35	101	76	109	193	87	15
Chevrolet Avalanche	0	0	0	0	0	0	0	35
Cadillac Escalade EXT	0	0	0	0	0	0	0	0

TABLE 6D

The total number of warranty claims does not represent the total number of broken cables that have been replaced. Analysis of the warranty data indicates that dealers frequently replace both cables when only one cable has broken.

GM searched the GM North America Claim Adjustment Retrieval Database (CARD-regular warranty), the Motors Insurance Corporation (MIC – extended warranty), and the Universal Warranty Corporation (UWC – extended warranty) databases to collect the warranty data for this response. The warranty data was last gathered on November 12, 2003.

A summary of warranty claims that may relate to the subject condition is provided on the CD in Attachment 1; refer to the Microsoft Access 2000 file in the folder labeled "REQUEST NUMBER SIX - WARRANTY DATA."

GM's warranty database does not contain the following information: vehicle owner's name or telephone number, replacement part number description, or customer concern statement. GM is providing a field labeled "Verbatim Text" in response to request 6J (dealer/technician comment). The verbatim text is an optional field in the GM warranty system for the dealer to enter any additional comments that may be applicable to the warranty claim. The verbatim text field is not required to be completed for every warranty claim.

The MIC extended warranty system does not contain the following information: repair dealer name or code, trouble code, trouble code description, part number, or verbatim.

The UWC does not provide extended warranty coverage for tailgate support cables; therefore there are no associated claims for tailgate support cable replacement.

The warranty data provided has limited analytical value in analyzing the field performance of a motor vehicle component. The warranty records do not contain sufficient information to establish the condition of the part at the time of the warranty correction; and service personnel may not consistently

use the appropriate labor and trouble codes. Warranty numbers represent claims by our dealers for reimbursement for parts and labor costs incurred in performing warranty service for our customers.

7. **Describe in detail the search criteria used by GM to identify the claims identified in response to Request No. 6, including the labor operations, problem codes, part numbers and any other pertinent parameters used. Provide a list of all labor operations, labor operation descriptions, problem codes, and problem code descriptions applicable to the alleged defect in the subject vehicles. State, by make and model year, the terms of the new vehicle warranty coverage offered by GM on the subject vehicles (i.e., the number of months and mileage for which coverage is provided and the vehicle systems that are covered). Describe any extended warranty coverage option(s) that GM offered for the subject vehicles and state by option, model, and model year, the number of vehicles that are covered under each such extended warranty.**

The GM regular warranty data was collected by searching for the following labor codes and trouble codes. The MIC extended warranty data was collected by searching only for the labor codes.

LABOR CODE	DESCRIPTION:
B5750	Support, Tailgate Cable - Right - Replace
B5751	Support, Tailgate Cable - Left - Replace

TROUBLE CODE	DESCRIPTION:
1D	Broken
1J	Collapsed
1K	Cracked
1L	Cut
2G	Improperly Cut
4D	Sheared
6C	Component - Inoperative

The warranty data provided has limited analytical value in analyzing the field performance of a motor vehicle component. The warranty records do not contain sufficient information to establish the condition of the part at the time of the warranty correction; and service personnel may not consistently use the appropriate labor and trouble codes. Warranty numbers represent claims by our dealers for reimbursement for parts and labor costs incurred in performing warranty service for our customers.

The subject vehicles are covered by a bumper-to-bumper new vehicle warranty for three years or 36,000 miles whichever occurs first. Many different extended warranty options are available through GM dealerships. They are offered at different prices and for varying lengths of time, based on customer's preference, up to 7 years from the date of purchase or up to a total of 100,000 vehicle miles. The General Motor's warranty system does not contain information on the number of vehicles that have extended warranty coverage.

8. **Produce copies of all service, warranty, and other documents that relate to, or may relate to, the alleged defect in the subject vehicles, that GM has issued to any dealers, regional or zone offices, field offices, fleet purchasers, or other entities. This includes, but is not limited to, bulletins, advisories, informational documents, training documents, or other documents or communications, with the exception of standard shop manuals. Also include the latest draft copy of any communication that GM is planning to issue within the next 120 days.**

GM is not aware of any service or warranty documents that relate to the subject condition, that GM has issued to dealers, regional or zone offices, field offices, fleet purchasers or other entities.

General Motors is not planning to issue in the next 120 days, any service, warranty or other technical documents or communications to its dealers, regional offices, zone offices or other entities regarding the subject condition.

9. Describe all assessments, analyses, tests, test results, studies, surveys, simulations, investigations, inquiries and/or evaluations (collectively, "actions") that relate to, or may relate to, the alleged defect in the subject vehicles that have been conducted, are being conducted, are planned, or are being planned by, or for, GM. For each such action, provide the following information:

(a) Action title or identifier;
(b) The actual or planned start date;
(c) The actual or expected end date;
(d) Brief summary of the subject and objective of the action;
(e) Engineering group(s)/supplier(s) responsible for designing and for conducting the action; and
(f) A brief summary of the findings and/or conclusions resulting from the action.

For each action identified, provide copies of all documents related to the action, regardless of whether the documents are in interim, draft, or final form. Organize the documents chronologically by action.

In October 2002, GM Engineering discovered that the number of warranty claims for replacing tailgate support cables on GMT800 pickup trucks was higher than other GM pickup truck models. GM conducted a number of assessments, analyses, test, studies, investigations, inquiries and evaluations (collectively "actions") that relate or may relate to the subject condition.

Attachment 9A describes the "actions" that relate or may relate to the subject condition. The following attachments contain documents related to the "actions".

Attachment 9B	Warranty Analysis
Attachment 9C	GM Evaluation Reports
Attachment 9D	Competitive Comparison
Attachment 9E	Summary Not In Suit Matters
Attachment 9F	Problem Resolution Tracking System (PRTS) & "Phase"

10 Produce copies of all engineering design and development information used to determine the strength, fatigue, and environmental requirements for the tailgate support cables installed in the vehicles identified in response the Request No. 1.

If not included in the original engineering design and development information, provide GM's estimate of:

(a) the approximate range of weights of the tailgates associated with each vehicle model identified in response to Request No. 1;
(b) the estimated maximum cargo load that GM maintains is appropriate to be imposed on the tailgate and the location on the tailgate where the "estimated maximum appropriate" cargo load would be imposed;
(c) GM's estimate of the nominal tensile load imposed on the tailgate support cable when loaded with the tailgate in the static open position (horizontal) and with the nominal cargo load (b) imposed on the open position (horizontal) tailgate;
(d) the effects of unbalanced side-to-side variations in tailgate loading on support cable loading;
(e) the effects of loads imposed on the cable if required to "catch" the weight of the falling tailgate door when unlatched and released from the vertical position;

(f) the effects of loads on a single tailgate support cable after the cable installed in the opposite side of the tailgate has broken.

If the (b) estimated maximum cargo load; (c) nominal tensile load imposed on the tailgate support cable; (d) the effects of unbalanced side-to-side variation in tailgate loading (e) the effect of loads imposed on the cable required to "catch" the weight of the tailgate and/or (f) the effect on a single tailgate support cable if the cable installed on the opposite side has broken varies by vehicle model or production period, provide a table that outlines the values appropriate for each model or production period.

The design and development information used to determine the requirements of the tailgate support cables installed in the subject vehicles is included in the Sub System Technical Specifications (SSTS). A copy of the SSTS, including information responsive to (a) - (f) above, is contained in Attachment 10A.

11. Provide a copy of the method(s) used to determine the strength, fatigue, and environmental endurance requirements for the tailgate support cable and a copy of reports of testing conducted to validate the strength, fatigue, and environmental endurance of the tailgate support cable whether these tests were conducted by GM, supplier(s) to GM, or others (e.g. sub-contractors.).

Provide copies of (1) the test procedures and (2) the results of tests that GM, suppliers, and/or sub-contractors used:

(A) during design, development, and release and
(B) for ongoing quality validation to evaluate the following performance characteristics of the tailgate support cables installed in vehicles identified in response to Request No. 1:
- **(a) tensile strength,**
- **(b) fatigue life when subjected to cyclic tensile loading,**
- **(c) fatigue life when subjected to flexing,**
- **(d) resistance to environmental exposure (e.g. effect of corrosion on the cable performance caused by contamination during manufacture, cracking or other deterioration of the cable coating or sealing that permits water to penetrate the coating and potentially compromise the cable integrity through corrosion),**
- **(e) any combinations of the above (a), (b), (c), and (d).**
- **(f) to evaluate any other service and/or environmental factors not listed above such as twist, impact, coating degradation due to flexing, exposure to ultraviolet light, etc. that potentially affect the service life of the tailgate support cable.**

The following General Motors Test Procedures, included in Attachment 11A, are used to develop and validate the End Gate Latch Assembly (includes support cables).

GMN 3824TP	Accelerated Corrosion
GMN 4155TP	4WD Full-Size SUV and Pickup Truck General Durability
GMN 4461TP	Endgate System (Horizontally Hinged) - Durability Slam
GMN 6520TP	Door System - Belt Line Rigidity Structural Test
GMN 9729TP	Hinged Component
MTL 0026	Tailgate Strength Tests
L/R-15-108A	Passenger Car Limited Powertrain Durability Test - Road and Chassis Dynamometer Hybrid
MTL 6116	North American Truck Platforms Tailgate Load Test

Attachment 11B contains reports of testing conducted by GM to validate the strength, fatigue, and environmental endurance of the subject vehicles related to the tailgate system.

GMT400

TWO	0M950-062	Corrosion Durability End of Test Report
TWO	16501-27B	Corrosion Test Vehicle
TWO	16501-56B	Corrosion Test Pickup Vehicle
TWO	16501-65B	Corrosion Test Vehicle
TWO	17501-36B	Accelerated Corrosion Test Vehicle
TWO	17M03-33B	Corrosion Test Short Box Pickup
TWO	JA501-05B	Limited Durability and Corrosion Test Vehicle
TWO	JAC03-05P	Endgate Slam Durability
TWO	12C03-671	Box Tailgate Static Strength
TWO	12CBF-100	Endgate Cycling Durability
TWO	12C01-671	Endgate Dynamic Strength
TWO	12C05-671	Pickup Box Tailgate System Durability
TWO	12C01-671	Endgate Dynamic Strength
TWO	12C01-671	Endgate Dynamic Strength
TWO	12C91-100	Endgate Dynamic Strength
TWO	12C01-671	Endgate Dynamic Strength
TWO	12C01-671	Endgate Dynamic Strength
TWO	12C91-100	Endgate Dynamic Strength
Per No.	K1R01-75P	Endgate Hoof Load

GMT800

TWO	P9A06-11	GMT800 Stapside Pickup Box Endgate Durability
PER No.	TA94ES033	4WD Durability Test Pickup Box
PER No.	TA94ES002	Durability Test Vehicle
PER No	K1R01-40P	Endgate,Cable Strength, Hoof Load, Box Spread
PER No.	TA98ER174	Endgate Slam Durability
PER No.	K1R01-75P	Endgate Hoof Load Testing
PER No.	K1R01-13P	Endgate Strength Test
PER No.	K250302B	Limited Durability Vehicle
PER No.	K2506044	Light Truck Limited 4WD Durability Test
PER No.	K2Q09-019	Endgate Slam Durability
PER No.	K2Q09023/005	Tailgate Load Test
PER No.	K2Q09-030	Tailgate Strength
PER No.	K2Q09049/005	Tailgate Load Test
PER No.	P101132	Hot Weather Limited Durability Vehicle
PER No.	P101138	Hot Weather Limited Durability Vehicle
PER No.	P151910	Light Truck Limited Durability Vehicle
PER No.	P151912	Durability Vehicle
PER No.	P151913	Light Truck 4WD Limited Durability Test
PER No.	P151917	Hot Weather Limited Durability Vehicle
PER No.	P151939	Durability Vehicle
PER No.	P151942	Durability Vehicle W/Corrosion and ABS
PER No.	P151943	Hot Weather Limited Durability Vehicle
PER No.	P151944	Durability Vehicle
PER No.	P1A05-10	Endgate Strength Test
PER No.	P1C0614/005	Tailgate Load Test
PER No.	P1C0619/005	Tailgate Load Test
TWO	P8E25-11B	Accelerated Corrosion Test Vehicle
PER No.	P9510-02	Durability Vehicle
PER No.	P9510-11	4WD Limited Durability Vehicle
PER No.	P9510-15	Durability Vehicle
TWO	P9A06-10	GMT800 Fleetside Pickup Box Endgate Durability

TWO	P9A06-11	GMT800 Fleetside Pickup Box Endgate Durability
TWO	P9A06-14	GMT800 Stepside P/U Box Tailgate Strength Test
TWO	P9A09-01	Tailgate Load Test Vehicle
TWO	P9A06-09	Tailgate Load Test
TWO	P9A06-01	Pickup Box Tailgate Strength
TWO	P9A06-08	Tailgate Load Test
TWO	P9A06-11	Stepside Pickup Box Endgate Durability
PER No.	K1R01-13P	Endgate Strength Test
PER No.	K1R01-40P	Endgate: Strength, Cable, Hoof Load, Box Spread
TWO	P9A06-10	Fleetside Pickup Box Endgate Durability
TWO	P9A06-11	Stepside Pickup Box Endgate Durability
TWO	P9A06-14	Stepside Pickup Box Tailgate Strength Test
TWO	P9A09-01	Tailgate Load Test
PER. No	K1R01-43P	Endgate Slam Durability
PER No.	P1A05-10	Endgate Strength Test

In order to assist General Motors in responding to this NHTSA Information Request, Delphi Automotive Systems has provided responsive information. The information is contained on the enclosed CD identified as Delphi's Response to NHTSA IR PE03-049 (GM 646) in the folder labeled "Tailgate Cable GMT800".

Delphi requests that some of this information stamped "Confidential Information" included on the CD, be afforded confidential treatment by the NHTSA. This information is not customarily made public by Delphi and contains trade secrets and commercial information which is privileged or confidential under 5 U.S.C. Section 552(b)(4), 49 CFR Part 512 and 49 U.S.C Section 30167(a). The CD is accompanied by a written claim for confidentiality and a Certificate in support of Delphi's request for confidentiality.

12. **Provide a copy of the quality control (or quality assurance) plan (sampling rates, test methods, etc.) used to validate the conformance to specifications of the tailgate support cables installed in the subject vehicles.**

Cable Manufacturing Assembly Co. (CMA) was the supplier of the tailgate support cables for all of the 1995 - 2000 model year GMT400 version pickup trucks. CMA was also the supplier to Delphi for the tailgate support cables for the 1999 - 2002 model year GMT800 version pickup trucks produced before January 1, 2002. In January 2002 the supplier of the tailgate support cables was changed by Delphi to Shanghai Delphi Automotive Door Latch & Security Systems Inc. (SDADS).

CMA has provided copies of the requested quality control plans. The information is included on the enclosed CD identified as Delphi's Response to NHTSA IR PE03-049 (GM 646) in the folder labeled "Tailgate Cable GMT800" in Appendix 1-CMA Documents.

Delphi has provided a copy of the SDADS quality control plan the information is contained on the enclosed CD identified as Delphi's Response to NHTSA IR PE03-049 (GM 646) in the folder labeled "Tailgate Cable GMT800".

13. **Provide a copy of the results of the quality control tests, whether performed by GM, supplier(s), or sub-contractors that have been performed on the tailgate support cables installed in the vehicles identified in response to Request No. 1.**

CMA has provided copies of quality control tests. The information is included on the enclosed CD identified as Delphi's Response to NHTSA IR PE03-049 (GM 646) in the folder labeled "Tailgate Cable GMT800" in Appendix 1-CMA Documents.

Delphi has provided copies of the SDADS quality control tests. The information is contained on the enclosed CD identified as Delphi's Response to NHTSA IR PE03-049 (GM 846) in the folder labeled "Tailgate Cable GMT800".

14. Identify all requested deviations from conformance to specifications received from all sources, the affected vehicle production, and provide a summary of the disposition for each of the requested deviations for the tailgate support cables installed in the vehicles identified in response in Request No.1.

Attachment 14A contains a copy of a "deviation" request to change the adhesive on the felt washer component of the cable sub-assembly. The new adhesive performs better in high temperatures. The "deviation" does not impact the GM manufacturing process and does not affect the performance of the tailgate cable strength, durability, or corrosion performance.

15. Describe all modifications or changes made by, or on behalf of, GM in the design, material composition, manufacture, quality control, supply, or installation of the subject component, from the start of production to date, which relate to, or may relate to, the alleged defect in the subject vehicles. For each such modification or change, provide the following information:

(a) The date or approximate date on which the modification or change was incorporated into vehicle production;
(b) A detailed description of the modification or change;
(c) The reason(s) for the modification or change;
(d) The part numbers (service and engineering) of the original component;
(e) The part number (service and engineering) of the modified component;
(f) Whether the original unmodified component was withdrawn from production and/or sale, and if so, when;
(g) When the modified component was made available as a service component; and
Whether the modified component can be interchanged with earlier production components.

Also, provide the above information for any modification or change that GM is aware of which may be incorporated into vehicle production within the next 120 days.

The tailgate support cables installed in the subject vehicles are supplied to General Motors as part of the Pickup Box (PUBX) Endgate Latch Assembly. The PUBX Endgate Latch Assembly is shipped from the latch supplier to the GM assembly plants with the cables attached. The PUBX Endgate Latch Assembly installed on the Avalanche and Escalade EXT is shipped to the tailgate supplier, installed on the tailgate and then the tailgate is shipped to the GM assembly plant.

Cable Manufacturing Assembly Co supplied the PUBX Endgate Latch Assemblies installed in the 1995 - 2000 MY GMT400 version of the subject vehicles. The PUBX Endgate Latch Assemblies installed in the 1999 - 2004 GMT800 version of the subject vehicles are supplied by Delphi Automotive Systems.

The modification information for the PUBX Endgate Latch Assembly, including the support cables, for all versions of the subject vehicles is contained in Attachment 15A.

The enclosed Delphi CD contains the requested modification information specific to the tailgate support cables.

16 Provide engineering drawings of (1) a representative (uninstalled) tailgate support cable and (2) a representative tailgate support cable as installed in a subject vehicle in (a)

tailgate open and supported by cable in the horizontal position and (b) tailgate closed positions.

GM Engineering drawings of the PUBX Endgate Latch Assembly (including cables) are contained in Attachment 16A. GM cannot locate drawings showing tailgate support cables, as installed in a subject vehicle, in a tailgate open or closed position.

Delphi has also provided four (4) drawings on the Delphi CD and two (2) hard copy drawings (Attachment Delphi 16) of the PUBX Endgate Latch Assembly.

17. Identify the company name, phone number, and contact name for the supplier(s) of the tailgate support cables.

Provide a table that identifies each GM assembly facility that has assembled vehicles listed in response to Request No.1 and summarizes the quantity of tailgate support cables by part number supplied by each supplier by month of delivery.

The tailgate support cables supplied as part of the PUBX Endgate Latch Assembly are supplied by:

GMT400 trucks
Cable Manufacturing Assembly Co.
Terry Williams
10896 Industrial Parkway
Bolivar OH 44612-0409
330-874-2900

GMT800 trucks
Delphi Automotive Systems
Mike McKale
5825 Delphi Dr.
Troy, MI 48098
248-813-3382

The GM assembly facilities that have assembled the subject vehicles are identified in Table 17.

Model Year	Chevrolet Silverado GMT400 GMT800	GMC Sierra GMT400 GMT800	Chevrolet Avalanche GMT800	Cadillac Escalade EXT GMT800
1995	GMT400 Z,1,E,F	GMT400 Z,1,E,F	N/A	N/A
1996	GMT400 Z,1,E,F	GMT400 Z,1,E,F	N/A	N/A
1997	GMT400 Z,1,E,F	GMT400 Z,1,E,F	N/A	N/A
1998	GMT400 Z,1,E,F,R	GMT400 Z,1,E,F,R	N/A	N/A
1999	GMT400 R,G,F GMT800 Z,1,E	GMT400 R,G,F GMT800 Z,1,E	N/A	N/A
2000	GMT400 F,R,G GMT800 Z,1,E,F	GMT400 F,R,G GMT800 Z,1,E,F	N/A	N/A
2001	GMT800 Z,1,E,F	GMT800 Z,1,E,F	N/A	N/A

2002	GMT800 Z,1,E,F	GMT800 Z,1,E,F	G	G
2003	GMT800 Z,1,E,F	GMT800 Z,1,E,F	G	G
2004	GMT800 Z,1,E,F	GMT800 Z,1,E,F	G	G

Pontiac East = E, Oshawa = 1, Ft. Wayne = Z, Flint = F, Arlington = R, Silao = G
Table 17

Information regarding the quantity of tailgate support cables supplied by each supplier by month of delivery is not available. However, each subject vehicle is manufactured with two (2) tailgate support cables. The production information provided on the CD in Attachment 1; in the Microsoft Access 2000 file in the folder labeled "REQUEST NUMBER TWO - PRODUCTION DATA", contains the date of manufacture of each subject vehicle.

18. For the tailgate support cables installed in the vehicles identified in Response No.1 above, provide a table that summarizes the significant characteristics of the tailgate support cables installed, cable coating and attachment brackets, including but not limited to

(a) cable part number
(b) cable length;
(c) cable diameter;
(d) cable material;
(e) cable coating material and process or processes used to apply the coating;
(f) attachment bracket lengths and offsets;
(g) cable flex radii when the tailgate door is closed.

The significant characteristics of the PUBX Endgate Latch Assembly including the tailgate support cables are provided in Attachment 18. The information requested is included in the attachment except (g) above. GM has not located documentation showing the cable flex radii when the tailgate is closed.

Delphi has provided the significant characteristics of the tailgate support cables. The information is contained on the enclosed CD identified as Delphi's Response to NHTSA IR PE03-049 (GM 648) in the folder labeled "Tailgate Cable GMT800".

19. Describe the differences, if any, between the tailgate support cables installed in the right and left sides of a subject vehicle.

The right and left side tailgate support cables installed in the GMT400 subject vehicles are identical.

The right and left tailgate support cables installed in the GMT800 subject vehicles are of the same material and construction. The difference between the right hand and left hand cables is the orientation of the eyelets at the cable ends. There is a symmetrically opposite 35 degree difference between the elongated end fitting (eyelet) and the round end fitting (eyelet) to ensure that the cable does not protrude through the gap between the closed end gate and the pickup box side.

20. Does GM offer a "heavy duty" version of the tailgate support cable for certain vehicles identified in response to Request No. 1? If so, describe the characteristics that distinguish the "heavy duty" tailgate support cable from the "standard" tail gate support cable and

describe the vehicle configurations, applications, or service for which the "heavy duty" tailgate support cable is appropriate.

General Motors offers only one version of the tailgate support cable and that version that meets all performance requirements.

21. **Provide a copy of the material and process specifications for the cable material associated with each tailgate support cable identified in Request No. 18 (a) above.**

    Provide a copy of the material and process specifications for the coating material applied to each tailgate support cable identified in Request No.18 (a) above.

    The GM material specifications for the tailgate support cables are included on the drawings (Attachment 16A) provided in response to Item 16. The GM material specifications for the cable coating material are contained in Attachment 21A, titled GMP.E/P.033 Thermoplastic Elastomer - Polyolefinic, Shore D40.

    CMA has provided a copy of the cable certification and a copy of the certification of the extrusion coating material. The information is included on the enclosed CD identified as Delphi's Response to NHTSA IR PE03-049 (GM 646) in the folder labeled "Tailgate Cable GMT800" in Appendix 1-CMA Documents.

    Delphi has provided the cable cover material specifications, steel wire specifications, wire rope specifications and a table from SAE Standards handbook related to the chemistry for stainless steel type 304. The information is contained on the enclosed CD identified as Delphi's Response to NHTSA IR PE03-049 (GM 646) in the folder labeled "Tailgate Cable GMT800".

22. **Summarize the GM engineering specifications for the properties of the tailgate support cable(s) installed in vehicle identified in response to Request No.18 (a) including ultimate strength, yield strength, and fatigue performance.**

    The GM engineering specifications for the tailgate support cables installed in the subject vehicles is contained in Attachment 10A and the drawings included in Attachment 16A.

23. **Provide a copy of all inspection reports conducted on returned tailgate support cables including, but not limited to, broken and corroded tailgate support cables removed after service from vehicles identified in response in Request No.1.**

    Information regarding inspection of returned tailgate support cables is contained in Attachments 9C and 9F.

    A Warranty Parts Return program was initiated on October 28, 2003. No reports have been written regarding the tailgate support cables acquired and inspected as a result of this warranty parts return program.

    A summary report regard inspection of 16 returned parts by Delphi is included on the Delphi CD identified as Delphi's Response to NHTSA IR PE03-049 (GM 646) in the folder labeled "Tailgate Cable GMT800".

24. **Provide copies of the test procedures and the results of tests that GM used (A) during design, development, and release and (B) ongoing quality validation to evaluate the performance of the tailgate support cables installed in vehicles identified in response to Request No.1 when subjected to**

    (a) cyclic loading

(b) flexing,
(c) environmental exposure (e.g. corrosion of the cable; cracking or other deterioration of the cable coating or sealing that permits water to penetrate the coating and potentially corrode the cable) and
(d) a combination of cyclic loads, flexing, and environmental exposure
(e) any other service and/or environmental conditions that potentially affect the service life of the tailgate support cable such as twist, impact, coating degradation due to flexing, exposure to ultraviolet light, etc.

The test procedures and results of tests are provided in the attachments included in response to Item 11.

25. Produce one of each of the following:

(a) Exemplar samples of each design version of the subject component;
(b) Field return samples of the subject component exhibiting the subject failure mode;
(c) A description and sample of any kits that have been released, or developed, by GM for use in service repairs to the subject component/assembly which relate, or may relate, to the alleged defect in the subject vehicles.

Enclosure 25 contains (a) identified and labeled samples of each design version of the subject component and (b) field return samples of the subject component. GM has not developed any kits for use in service repairs of the subject component that relates to the subject condition in the subject vehicles. The cables are sold as individual replacement parts.

26. Identify all restrictions, load prohibitions (if any), and other limitations that potentially relate to tailgate loading applicable to any of the vehicles identified in response to Request No. 1.

Provide a copy of all documentation that GM provides to owners that provides information regarding the use or loading, including any limitations/ restrictions regarding the use or loading, of the tailgate installed in vehicles identified in response to Request No.1.

The use, loading and restriction information GM provides to owners related to the tailgate is included in the Owners Manual for the subject vehicles. Attachment 26 contains copies of the responsive sections of the Owners Manual for the 1999 - 2004 model year subject vehicles.

27. State the number of each of the following that GM has sold as replacement parts that may be used in the subject vehicles by part number (both service and engineering/production), model and model year of the vehicle in which it is used and month/year of sale. Specify the cut-off date for sales information provided.

(a) Subject component;
(b) Upgraded, improved or heavy-duty version of the subject component
(c) Any kits that have been released, or developed, by GM for use in service repairs to the subject component/assembly.

Also identify by make, model and model year, any other vehicles of which GM is aware that contain the identical component, whether installed in production or in service, and state the applicable dates of production or service usage.

An electronic summary table of the requested service part information for the subject component is provided on the CD in Attachment 1; refer to the Microsoft Excel file in the folder labeled "Response for Q27." GM does not offer any kits that have been released for use in service

repairs specifically related to the subject condition and only offers one version of the subject component.

This table contains service part numbers, part description, part usage information, part sales figures by month and calendar year and the supplier's name and address, contact name and phone number. The General Motors Service Parts System does not contain a title of a contact person for each component and is therefore unable to provide this information.

29. Furnish GM's assessment of the alleged defect in the subject vehicle, including:

(a) The causal or contributory factor(s);
(b) The failure mechanism(s);
(c) The failure mode(s),
(d) The risk to motor vehicle safety that posed by the breakage of a tailgate support cable. Include a discussion of (I) the potential for a lowered tailgate that has experienced breakage of a single tailgate support cable to drop from the affected vehicle and be retained solely by the remaining support cable (II) the potential for a lowered tailgate that experiences breakage of both tailgate support cables to separate completely from the vehicle at stationary and road speeds.
(e) What warnings, if any, the operator and the other persons both inside and outside the vehicle would have that the alleged defect was occurring or subject component was malfunctioning; and
(f) The reports included with this inquiry.

Information regarding GM's assessment of tailgate support cables breaking on the subject vehicles is included in the responses above. Analysis of warranty returned tailgate support cables indicates that corrosion of the galvanized carbon steel cables is a causal or contributory factor to tailgate support cables breaking.

Oxidation of the galvanized coating layer of the cables eventually exposes the carbon steel to contaminants, leading to oxidation of the steel. After enough of the carbon steel cable has oxidized, the cable can no longer withstand the loads that are being applied by some customers and the cable breaks. The inspection of broken cables shows that the cable breaks at the point of highest corrosion, which is the lowest point (at the bottom) of the radius created when the tailgate is in the closed position.

A carbon steel cable that has oxidized is also impacted by the frequency of flexing of the cable. Each time the tailgate is opened, the cable is flexed. Oxidized cables that are frequently flexed and put under loads will break at a higher frequency than oxidized cables that are rarely flexed. Thus specific vehicle use is also a contributory factor.

The subject vehicle (pickup trucks) tailgate cables are located in an area of the vehicle that is open to the environmental elements at the trailing end of the vehicle. Moisture, salt, and debris from the road surface are sprayed backward and pulled upward to the rear of the pickup truck by a low-pressure area created by the aerodynamics of a moving pickup truck. Moisture, salt and debris can accelerate the rate of oxidation. When the tailgate is in the closed position the elements concentrate on the lowest point of the cable.

The tailgate support cables are validated individually to withstand the loads of a tailgate dropped from varying degrees of the open positions to a total of 15,000 cycles. If one cable were to break, the end gate would be held by the remaining cable and the trunions (hinges).

If both cables were broken, the tailgate would drop slightly until it hit on the rear bumper. The tailgate drop would be limited to a small downward angle from horizontal. The slight drop would limit risk of possible injury.

It is highly improbable that a lowered tailgate that had broken support cables would separate from the vehicle. To remove the end gate the support cables must be disconnected and the tailgate held at a slight upward angle (approximately 45 degrees), then pulled upward and rearward on the right side. This action will release the right trunion (hinge) that has an opening in the round cup design. It is extremely unlikely that the required motions unintentionally could be applied in the necessary order.

If the tailgate support cables were to break with the tailgate in the open position, a vehicle operator and other persons both inside and outside the vehicle would be able to hear the steel cable break. If both cables were to break there would also be an audible indication when the end gate hit the bumper. There are also visible indications of a damaged cable such as bubbled or swollen sheathing and signs of oxidation.

Analysis of the warranty data shows that the number of warranty claims for replacement of broken tailgate support cables is low for the large population of vehicles produced. The number of consumer reports, field reports, injury reports and lawsuits is also low.

* * *

General Motors requests that the documents stamped "GM Confidential" included in Attachments 9C, 10A, 11A, and 11B be afforded confidential treatment by the NHTSA. This information is not customarily made public by General Motors and contains trade secrets and commercial information which is privileged or confidential under 5 U.S.C. Section 552(b)(4), 49 CFR Part 512 and 49 U.S.C. Section 30167(a).

Attachment 16B contains engineering drawings that are identified as documents #15061304 Rev 4, 15061304 Rev 5, 15068286, 15724157 in the attachment index. These drawings have commercial value that can only be obtained independently at considerable cost. This information can be used by competitors to identify quality and performance problems or differences, thereby enabling them to improve their own products, without the expenditures associated with the evaluation of products, all at the expense of General Motors. Attachment 16B contains commercial information the disclosure of which would likely result in substantial competitive harm.

General Motors treats the above material as confidential proprietary information available only to authorized General Motors personnel and not otherwise available to the public. The document is maintained under a record-keeping system which is intended to control dissemination of this material within General Motors, and to assure that it is not disseminated outside the Corporation, except as described in the attached certification made pursuant to 49 CFR Part 512.4(e).

To the best of our knowledge, no prior determinations of the confidentiality of this document has been made by the NHTSA, other Federal Agencies, or the Federal Courts. Documents such as those contained in Attachments 9C, 10A, 11A, and 11B, however, have, to the best of our knowledge, normally been granted confidential treatment by the NHTSA in the past. The drawings in Attachment 16B are of a type for which a class determination of confidentiality has been made under 49 CFR Part 512, Appendix B.

The documents subject to this request for confidentiality has been clearly stamped "GM CONFIDENTIAL". If a request for disclosure of any or all of this information is received by the NHTSA, General Motors requests notification of receipt of each such request and, if necessary, an opportunity to further explain the reasons why such material is trade secret and commercial information which should not be disclosed under the applicable statutes and regulations.

GM claims that certain information, in documents that are part of claims files maintained by the GM Legal Staff, is attorney work product and/or privileged. That information includes notes, memos, reports, photographs, and evaluations by attorneys (and by claims analysts, investigators, and engineers working at the request of attorneys). GM is producing responsive documents from claims files that are neither attorney work product nor privileged and withholding those that are attorney work product and/or privileged.

This response is based on searches of General Motors Corporation (GM) locations where documents determined to be responsive to your request would ordinarily be found. As a result, the scope of this search did not include, nor could it reasonably include, "all of its divisions, subsidiaries (whether or not incorporated) and affiliated enterprises and all of their headquarters, regional, zone and other offices and their employees, and all agents, contractors, consultants, attorneys and law firms and other persons engaged directly or indirectly (e.g., employee of a consultant) by or under the control of GM (including all business units and persons previously referred to), who are or, in or after 1999, were involved in any way with any of the following related to the subject condition in the subject vehicles:

(a) Design, engineering, analysis, modification or production (e.g. quality control);
(b) Testing, assessment or evaluation
(c) Consideration, or recognition of potential or actual defects, reporting, record-keeping and information management, (e.g., complaints, field reports, warranty information, part sales), analysis, claims, or lawsuits;
(d) Communication to, from or intended for zone representatives, fleets, dealers, or other field locations, including but not limited to people who have the capacity to obtain information from dealers."

This response was compiled and prepared by this office upon review of the documents produced by various GM locations, and does not include documents generated or received at those GM locations subsequent to their searches.

Please contact me if you require further information about this response or the nature or scope of our searches.

Sincerely,

Lyndon R. Lie
Director Product Investigations

Attachments

CERTIFICATE IN SUPPORT OF REQUEST FOR CONFIDENTIALITY

I, Lyndon R. Lie, pursuant to the provisions of 49 CFR Part 512 state as follows:

(1) I am the Director of Product Investigations, and I am authorized by General Motors Corporation (GM) to execute documents on its behalf;

(2) The information stamped "GM Confidential" contained in Attachments 9C, 10A, 11A and 11B to this document is confidential and proprietary data and is being submitted with the claim that it is entitled to confidential treatment of 5 USC §552(b)(4), 49 U.S.C. Section 30167(a) and implemented in 49 CFR Part 512;

(3) I, or members of my staff, have personally inquired of the responsible GM personnel who have authority in the normal course of business to release the information for which a claim of confidentiality has been made to ascertain whether such information has ever been released outside GM;

(4) Based upon such inquiries to the best of my knowledge, information and belief, the information for which GM has claimed confidential treatment has never been released or become available outside GM, except as hereinafter specified: None.

(5) I make no representations beyond those contained in this certificate and in particular, I make no representations as to whether this information may become available outside GM because of unauthorized or inadvertent disclosure except as stated in Paragraph 4; and,

(6) I certify under penalty of perjury that the foregoing is true and correct. Executed on this the 12th day of December 2003.

Lyndon R. Lie
Director
Product Investigations