KLINE, ET AL v. MORGAN-ALCALA, ET AL

FRANCOIS CASTAING

June 14, 2011

Prepared for you by

BIENENSTOCK
NATIONWIDE COURT REPORTING & VIDEO

Bingham Farms/Southfield • Grand Rapids
Ann Arbor • Detroit • Flint • Jackson • Lansing • Mt. Clemens

SUPERIOR COURT OF NEW JERSEY
LAW DIVISION, MORRIS COUNTY

THOMAS KLINE, AS ADMINISTRATOR AD
PROSEQUENDUM OF THE HEIRS AT LAW
OF SUSAN MORRIS KLINE, (DECEASED),
AS ADMINISTRATOR OF THE ESTATE
OF SUSAN MORRIS KLINE, and THOMAS
KLINE, INDIVIDUALLY,

Plaintiffs,

vs. Docket No. MRS-L-3575-08

VICTORIA MORGAN-ALCALA, CARLOS
ALCALA, NATALIE RAWLS,
DAIMLERCHRYSLER CORPORATION, A/K/A
CHRYSLER CORPORATION, LOMAN AUTO
GROUP, CHRYSLER GROUP LLC (For
Discovery Purposes), JOHN DOES A
THROUGH Z, (Names Being Fictitious),
ABC CORPORATIONS, 1 THROUGH 100,
(Names Being Fictitious),

Defendants.

____

The Videotaped Deposition of FRANCOIS CASTAING,
Taken at 30800 Telegraph Road, Suite 2925,
Bingham Farms, Michigan,
Commencing at 8:34 a.m.,
Tuesday, June 14, 2011,
Before Lezlie A. Setchell, CSR-2404, RPR, CRR.

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Appearing on behalf of the witness.

ALSO PRESENT:
Paul V. Sheridan
Antonio C. Irizarry
Rachel Bierle - Video Technician

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Bingham Farms, Michigan
Tuesday, June 14, 2011
8:34 a.m.

VIDEO TECHNICIAN: We are now on the record. This is the videotaped deposition of Francois Castaing being taken on Tuesday, June 14th, 2011. The time is now 8:34 and 7 seconds a.m. We are located at 30800 Telegraph Road, Suite 2925, Bingham Farms, Michigan. We are here in the matter of Thomas Kline, et al, versus Victoria Morgan-Alcala, et al. This matter is being held in the Superior Court of New Jersey Law Division. My name is Rachel Bierle, video technician. Will the court reporter swear in the witness and the attorneys briefly identify themselves for the record, please.

FRANCOIS CASTAING,

was thereupon called as a witness herein, and after having first been duly sworn to testify to the truth, the whole truth and nothing but the truth, was examined and testified as follows:

MS. JEFFREY: I'm Sheila Jeffrey and I represent Francois Castaing.

MR. MORGAN: My name is Courtney Morgan and I'm appearing this morning on behalf of the

Plaintiffs.

MS. DeFILIPPO: Angel DeFilippo from Grieco, Oates & DeFilippo for the Plaintiffs.

MR. SACCO: Russell Sacco, S-A-C-C-O, personal counsel to the Plaintiffs.

MR. FUSCO: Christopher Fusco, Callahan & Fusco, for the Defendant Loman Auto Group.

MS. DeFILIPPO: And what about Mr. Gill on the phone?

MR. SACCO: Jim, you want to identify yourself for the record, please?

MR. MORGAN: Counsel on the phone?

MR. GILL: I was going in and out here. James Gill, Leary, Bride, Tinker & Moran, on behalf of Defendants Alcala.

MR. MORGAN: It's my understanding that this deposition is being taken pursuant to the rules governing civil practice in the State of New Jersey which includes Rule 414-3 Sub 3 regarding objections which states: No objection shall be made during the taking of a deposition except those addressed to the form of a question or to assert a privilege, a right to confidentiality or a limitation pursuant to a previously-entered court order. The right to object on other grounds is preserved and may be asserted at the time the deposition testimony is proffered at trial. An objection to the form of a question shall include a statement by the objector as to why the form is objectionable so as to allow the interrogator to amend the question. No objection shall be expressed in language that suggests an answer to the deponent. Subject to Rule 414-4, an attorney shall not instruct a witness not to answer a question unless the basis of the objection is privilege, a right to confidentiality or a limitation pursuant to a previously-entered court order.

MR. FUSCO: Before we start, I have a question for Mr. -- procedural question for Mr. Morgan, and I might be missing something because I've come late to the game on this case. Have you been admitted pro hac vice to practice in the State of New Jersey?

MR. MORGAN: No, I have not, but we're in the State of Michigan now.

MR. FUSCO: I understand that but this is a New Jersey case. Have you been admitted pro hac vice to practice law in the State of New Jersey?

MR. MORGAN: I indicated to you I was not but I am admitted to practice in Michigan where the deposition is being taken.

MR. FUSCO: My question is as simple as that. Are you admitted pro hac vice to practice law in the State of New Jersey?

MR. MORGAN: I've answered the question twice. How many times do you want me to answer you?

MR. FUSCO: Is it no?

MR. MORGAN: I told you I have not been admitted pro hac vice in New Jersey.

MR. FUSCO: Okay. I'm not going to stop you, but I object to you taking this deposition because you're not admitted to practice law in the State of New Jersey and this is a New Jersey case.

MS. DeFILIPPO: Okay. I'd like to make a statement --

MR. MORGAN: Are you admitted to practice pro hac vice in the State of Michigan, counsel?

MR. FUSCO: Well, I'm admitted to practice law in the State of New Jersey.

MR. MORGAN: Are you admitted to practice law pro hac vice in the State of Michigan?

MR. FUSCO: No, but this is a New Jersey case.

MR. MORGAN: Well, then I guess parties can object either way on this point. I thought the matter had been brought up by Ms. DeFilippo some time ago.

MS. DeFILIPPO: I did and I sent a letter to everyone involved in this case advising them that there would be local counsel who would be asking questions, and if anyone had a problem, to please let me know before the taking of this dep. No one advised me that there was any problem. Nobody called me about that issue. Nobody responded to that letter, and the letter was very clear, and we can talk about the letter with the judge. I don't have it with me today. However, everyone is aware of it, and we had pre-advised everyone at this deposition and received no objections.

MS. JEFFREY: And just for the record, I did not receive that letter.

MR. MORGAN: I'd like to ask you if you're admitted, counsel, to the --

MS. JEFFREY: Yes, I am.

MR. MORGAN: -- pro hac vice in New Jersey?

MS. JEFFREY: Yes, I am.

MR. MORGAN: Okay. We can agree the deposition is taking place in the State of Michigan?

MR. FUSCO: Oh, yes, absolutely, and you can begin.

MR. MORGAN: Thank you.

EXAMINATION

BY MR. MORGAN:
Q. All right. Sir, would you state your full name for the record, please?
A. My name is Francois Castaing.
Q. Mr. Castaing, I assume you've given depositions before, have you not?
A. Yes.
Q. Okay. I want to -- in addition to the New Jersey Court Rule which I read a few moments ago, I'd like to also go over a few ground rules or dos and don'ts that will help us to conduct your examination here today.
Firstly, I'm going to ask you to listen to the question that you're asked and answer the question that you're asked. Will you be able to do that?
A. I will do my best.
Q. Can you think of any reason why you couldn't answer the question posed to you?
A. It would depend on the questions.
Q. If you don't know something or don't recall, please tell me that. Don't speculate or guess, okay?
A. I will not speculate.
Q. All right. I would also like you to remember to verbalize your responses yes or no as is appropriate. Sometimes people go uh-huh, hu-huh, uh-uh, things like that which may work fine in normal conversation but

will not translate well to a written record, and so on occasion you may do that, and I may say, Is that a yes, Is that a no? I'm not being disrespectful to you or impertinent. I'm just trying to protect the record, okay?
A.   Was that a question?
Q.   Do you understand?
A.   Yes, very well.
Q.   Thank you. Also, try and remember to allow the questioner to complete the question before you start answering. Again, this is for purposes of clarity of the record. We may step on each other on occasion. I'll try not to do it as well, and again, that's to protect the clarity of the record. Let the questioner complete the question. The question may be different than what you anticipate it to be, and so that's important as well. If you don't understand a question, Mr. Castaing, please advise the questioner that you don't understand.
A.   I will.
Q.   Okay. If, however, you answer a question, I'm going to assume you understood it; is that fair?
A.   That's fair.
Q.   Can you tell me what your current address is, please?
A.   It's -- I'm living in Michigan at 6394 Muirfield Court

in Bloomfield Hills, Michigan.
Q. And can you tell me what your educational background is, please?
A. My occupation background?
Q. Your educational background.
A. Oh, education.
Q. I'm sorry.
A. I'm an engineer by training. I graduated from one of the top five engineering college in France. The name of the college is called Ecole Nationale Superieure Des Arts Et Metiers, I can give you the spelling later, or the initial is ENSAM, easy to find on the internet. This is a prestigious engineering college in France, was created by, in the early 1800s by Napoleon I who wanted to equip France with top-notch engineers to design and build bridges and railroads and steam engine and so on.
In the early part of the 1900s, the school stopped being a military school, which it was at the beginning, and went on to produce an array of great engineers who built French railroads and bridges, automobiles, airplanes.
In 1964, I was admitted through a competition to enter the school. It's a five-year degree that taught me a broad range of engineering

sciences from drafting, manufacturing technique, math, science, manufacturing all the way from electricity to the beginning of computing and so on.

That's my background.

Q. All right. And -- excuse me -- are you employed today?

A. I'm retired.

Q. Okay. How long have you been retired, sir?

A. I left Chrysler Corporation in, formally in 2000. In fact, I retired from active duty at Chrysler January 1st, 1998.

Q. Okay. And what does that mean then if you retired from active duty in January of 1998 but you were formally with Chrysler until 2000; what did you do between '98 and 2000?

A. I left all operating responsibility that I used to have at Chrysler at the end of '97. I left the premises of Chrysler and was on call to advise our Chairman and CEO, Bob Eaton, whenever he wanted me to comment and help him talk about subjects. So I became like a part-time consultant to the Chairman at Chrysler.

Q. And were you continued on the payroll at Chrysler paid as though you were coming into work every day for that period until 2000 or not?

A. No. I was on a retainer with Chrysler. Well, I was still on the payroll but a different role, let me put it this way.
Q. So your pay rate changed then in January of '98?
A. Greatly.
Q. Okay. And did you during that two-year or so period consult at all with Mr. Eaton?
A. No, and there is a simple explanation to that that by --
Q. Mr. Castaing, remember at the beginning of the deposition, I asked you to listen to the question and answer the question you were asked; do you remember that?
Do you remember that, sir?
A. I do.
Q. Okay. Please follow the instruction you agreed to follow, if you would.
All right. Now prior to January 1 of 1998, what was your job?
A. My last job before '98 was head of international operation of Chrysler. I was President of Chrysler International, which I was appointed to in November of 1996.
Q. What were your duties as President of Chrysler International?

A. I was in charge of overseeing and directing business of Chrysler outside of NAFTA, overseeing 47 countries with operation of manufacturing sometimes and sales of Chryslers around the world.
Q. And what was your job prior to November of 1996?
A. From November of 1988 to November of 1996, I was head of Engineering, of Vehicle Engineering for Chrysler. I was initially Vice President of Vehicle Engineering and then later became Executive Vice President of Vehicle Engineering.
Q. And in context at Chrysler, what did that mean to be the Vice President or Executive Vice President of Vehicle Engineering?
A. It meant that I was in charge of the 7/8,000 engineers creating, developing, engineering cars for production, all of them, trucks, automobiles, power trains, everything.
Q. Would this include the Jeep line of vehicles?
A. Yes.
Q. Would this job have included being the Vice President in charge of people working on fuel systems to make sure that they didn't leak in the event of a crash, things such as that nature?
A. I was in charge of everything.
Q. So the answer is yes?

A. Just what I just said.
Q. Prior to November of 1988, what was your job?
A. From July, 1987, through November of 1988 further to the acquisition of AMC by Chrysler, I was the head of Jeep and Truck Engineering for Chrysler.
Q. So the same job that you did as the Executive Vice President for Vehicle Engineering only it was limited to the Jeep and Truck family of vehicles --
A. Yes.
Q. -- at Chrysler; is that a true statement?
A. Yes.
Q. Thank you. And so you became a Chrysler employee in July of 1987; is that right?
A. Yes.
Q. That's when AMC, really Jeep, right, was purchased by Chrysler?
A. Yeah.
Q. Okay. Prior to July of '87, what did you do?
A. From 1984 through 1987, July, I was the Executive Vice President for Engineering and Quality for AMC.
Q. When you were the head of Jeep/Truck Engineering -- excuse me -- at Chrysler, where was your office located?
A. At Chrysler in what year?
Q. Well, I put it this way, when you were the head of

Jeep/Truck Engineering, so I guess that's from July of '87 to November of '88, where was your office?
A. We were located at what the time was called Amtech which is the former technical office building where AMC was operating on Plymouth Road in Detroit.
Q. Did the location of your office actually change with the advent of AMC being acquired by Chrysler?
A. Initially not but by the time I moved to become the head of Engineering for all of Chrysler vehicle, I moved to Highland Park.
Q. We'll get to that in a minute. So am I correct that -- I think you said between '84 and '87, you were the head of Engineering and Quality for AMC. That would have been at Amtech on Plymouth Road?
A. Yes.
Q. Okay. And then is it November of '88 that you moved somewhere else?
A. In November of 1988 when I was promoted to become the head of Engineering for all Chrysler vehicle, my office was moved to Highland Park where Chrysler was based, Highland Park in Detroit.
MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 1
8:51 a.m.
BY MR. MORGAN:

Q. Mr. Castaing, I'm going to show you a document which I've marked as Castaing Exhibit Number 1, and it appears to be an inter-company correspondence attached to a number of organizational charts. I'm going to ask you if you can identify that.

Can you identify it, sir?

A. Yes.

Q. What is it?

A. This is notes describing the organization charts of Jeep and Truck Engineering.

Q. At what time?

A. In December of 1987.

Q. And is the first page, does that contain your signature?

A. Yes.

Q. And did you, in fact, then distribute those --

A. Most probably.

Q. -- organizational charts?

A. Most probably.

Q. Okay. What is an organizational chart?

A. Sorry?

Q. What is an organizational chart?

A. It's a chart that describe what the role and responsibility of the people are and organization substructure underneath them.

Q. If you need to look at the organizational chart, please do so. Can you identify for me where the responsibility for development of the fuel systems would have lie within the Jeep/Truck Engineering group that you were the head of?

A. It may have changed over the years, but I remember that Paul V. was under drive chain. Chassis engineering was Owen Viergutz.

Q. Now as I understand it, you looked at the second page of the document that shows that Mr. Viergutz, if I pronounced that correctly, hopefully I did, reported directly to you on this organizational chart. Is that a true statement?

A. Yes.

Q. And, in fact, Mr. Viergutz did report directly to you then; is that right?

A. Yes.

Q. Now do you know who within Mr. Viergutz's group would have been chiefly responsible for the fuel system engineering of Jeep/Truck vehicles?

A. I don't remember and it's not clear from this chart where it was.

Q. Do you remember a gentleman by the name of Buser, Don Buser listed on here as DF Buser, B-U-S-E-R?

A. I remember the name but I don't remember what he was

doing.
Q. Okay.
A. This goes back to 1987.
Q. Sure. How often would you have met in this '87 era and going forward with your various direct reports regarding the issues that were confronting them at the time?
A. Can you explain to me what you mean by issue?
Q. Well, obviously Mr. Viergutz was in charge, as you said, of drive train and chassis engineering, a subpart of that was fuel systems as an example. How often were you meeting with Mr. Viergutz regarding the items that were dedicated to his area to take care of?
A. Well, an organization like that is set up to create, develop vehicle. We will have regular review on the various project that were done by the group. Some review were done at some particular part of the program when it was felt that it was important for me to understand what exactly was going on, and I can come back to that if you want me to elaborate, and but each of these leader, more one than the other people reporting to me were running their responsibility within the context of the program that was being handled by my organization at the time, and we were designing more than one car at a time, so there was

several project being done side by side.

From an operation standpoint on the other hand and not related to specific issues with programs, we had a staff meeting every Monday morning first thing from 8 to 9 where people could vent or question and share with the rest of the group what they were doing that week, whether it was important or not.

Q. Okay. Were there actual meetings where engineering programs were reviewed with you by Mr. Viergutz or others at his level?

A. We had -- I don't remember the exact name because it goes back a long time, but the principle was to have what we call vehicle program review and to make sure that maybe every two months or every three months all the people involved in the program, mostly people reporting to me and some of their key people were gathered in a room, and we were sharing the progress of the work and issues they were facing or the lack of issues, whether they were related to technical challenges, change in, you know, maybe product planning to say, Well, have you thought about maybe adding that feature to the car, and we will discuss that, and then we were making sure that people were staying on time, make sure that people were knowing how much the car was going to cost and whether the investment envelope was sufficient to invest and made the program happen.

It was also a time where our colleagues from manufacturing and procurement were in the room to collaborate on making sure that the car would be not only well engineered but engineered for production.

Q. Would there be occasions when suppliers would be making presentations to these vehicle program reviews that you just described?

A. Typically, no.

Q. Did it ever occur or never occur?

A. I don't remember an occurrence when that happened. We had separate meeting with suppliers when there were significant issues that needed to be discussed, and they were separate meeting for their -- for the subject matter that and the commodity or the part they were making or the technology of their part and so on.

Q. Okay. So they may not have gone to the vehicle program reviews, but there were separate meetings where very technical issues would be discussed with suppliers regarding the parts that they were supplying; is that what you're saying?

A. Typically, yes, typically at the working level, at the level of the chief engineer or the lead person designing a system. They will be, of course, asked to

collaborate with the supplier to make sure that we were in sync about what the part was supposed to do, if the supplier was to supply it and make sure that the part was, development was going on time and in sync with the car program, itself, to make sure at the end they will be together on the supply line.
Q. Were you, Mr. Castaing, also meeting with suppliers or not?
A. Exceptionally I would.
Q. So on occasions you also met with suppliers about issues related to the parts they were supplying to Chrysler?
A. I was more involved in strategic meeting with the suppliers when we were deciding -- we would decide just at the beginning of a new car program that we were going to team up with, let's say, Goodyear to buy the tires for a new Jeep. I would probably sit down with the top engineer and top sales guy to make sure they were committed to work with us a proper way.
Q. Okay. Now you mentioned earlier, and I just want to make sure that I understand the terms, you said chief engineer or lead person designing a particular system. Are those terms synonymous in your view or is there --
A. Well, if you go back to the chart you presented to me, a chief engineer or director would be, what I call a

chief engineer in the case would be Owen Viergutz formerly chassis engineering director, and the lead people underneath with MacAfee, Buser, Schramm, Haikio. That's what I refer to.

Q. So looking at the second page of Exhibit 1 is what you're referring to just so the record is clear, and I thank you for that clarification.

Now in this job as the head of Jeep/Truck Engineering, Mr. Castaing, did you also meet with dealers?

A. Yes.

Q. And why would you meet with dealers?

A. First of all, I was at a time not only the head of Engineering, I was also an officer of AMC Corporation, and it was part of our role as a team, as the management team of the corporation, itself, as an officer to find time to understand what customers were, which in the car industry they are the dealers, before they are to the real customer. So on several occasion we will be invited to, by our colleagues in sales to get to know dealers personally and to have a chance to interact with them.

In the case of car programs, we had very strong Jeep dealers, for example, around the country, and some were -- had very strong opinion about what

Jeep was supposed to be, and especially when you were creating a new one, and we would consult with them or we'll meet face-to-face and ask what their views were, not that we always follow everything they were hoping for but we were listening to them. So yes, I had quite a few interaction with dealers.

Q. And there were occasions then when dealers did influence the designs that Chrysler was producing with an idea to selling them to the dealers who could then sell them to the public; is that a fair statement?

MR. FUSCO: Object to the form.

MS. JEFFREY: I join.

THE WITNESS: Should I answer?

MS. JEFFREY: Oh, yes, yeah.

A. Yes, I think that I don't remember specifically if and when a specific idea of a dealer was adopted for any of the car we did, but we were open-minded to listen to them. In some case it was we were reassuring them that the question they were raising, in fact, was already very clear in our mind and was already incorporated in the program.

MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 2
9:04 a.m.

BY MR. MORGAN:

Q. Okay. Mr. Castaing, I want to show you now Exhibit Number 2, which is an article, I believe, that was published on Thursday, January 17, 1991, in something called the Chrysler Times identifying itself as a weekly newspaper for Chrysler employees and their families, and I'm going to ask you if you can identify that for me?

MS. DeFILIPPO: What's the marking on that document?

MR. MORGAN: Exhibit 2.

BY MR. MORGAN:

Q. Can you identify this?

A. Yes.

Q. All right. What is it?

A. It's edition of the Chrysler Times. Like you said, it was the weekly internal newspaper of Chrysler, and this piece talk about, at least on the first page, Chrysler reorganized to promote teamwork, and it was a major reorganization under President Bob Lutz that was announced that day.

Q. Did your duties change at all at that time?

A. No. Well, it changed -- sorry -- it changed in the sense that prior to this organization, I was the head engineer for Jeep and Truck. Well, in 1989, as I mentioned earlier, I became the chief engineer or Vice

President of Vehicle Engineering for all cars and trucks for Chrysler. In parallel with that, the company was trained to promote a more matrix organization, and while I was a chief engineer of Jeep and Truck vehicles, I became the, what we call at the time the platform manager for Jeep and Truck, which was encompassing how they were sold, all aspect of the Jeep and Truck business.
Q. Does this represent then, this reorganization, a promotion for you?
A. In a, yeah, in a way you can say it is a promotion, although in a matrix organization that where you have, you know, you know, organization silos like that and then you have responsibility going across, and I think I saw that more work rather than a promotion.
Q. Can you tell me, when you talked about the business of Jeep and Truck, would that have included the product plan for those vehicles?
A. Yes. I was having the responsibility of coordinating product planning, design, manufacturing, even to some extent how the car was presented to the public and sold, even though I was not directly in charge of sales, I was not in charge of product planning, but I was like a godfather for business. I was involved in some or all of that trying to make sure that we were

improving all aspect of our operation, specifically for the benefit of the customers.

MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 3
9:08 a.m.

BY MR. MORGAN:

Q. Okay -- excuse me -- let me show you what I have also marked as Exhibit 3. It's two pages. The first page is -- excuse me -- dated September 5 of 1991, so a few months later, I believe to be signed by Mr. Iacocca and containing some information about some additional, I guess, reorganization and ask if you can identify that?

A. I know the subject but I have never seen this letter, so -- I don't remember seeing it.

Q. It's a letter addressed to all Chrysler employees and the dealers?

A. Right.

Q. Was that something that you were familiar with Mr. Iacocca doing is communicating with employees and dealers in that fashion?

A. This letter talk about the specific letter which was rare on the part of Iacocca to everyone saying that he was going to step down at the end of December, 1992.

Q. And who was Mr. Iacocca then at that time, just so that we orient ourselves and the jurors in this matter?

A. Lee Iacocca was the Chairman of the Board and the Chief Executive Officer of Chrysler Corporation.

Q. So if we look back at that little schematic organizational chart on Exhibit 2, he would be above Mr. Lutz?

A. Yeah. Mr. Lutz was the President, and Lee Iacocca was the CEO.

Q. Okay. And Mr. Iacocca made some announcements in September of '91 about the conduct of the business of the corporation which mentions you; is that correct?

A. I've not read this.

MS. JEFFREY: Go ahead and --

BY MR. MORGAN:

Q. Go ahead, absolutely. I'm not trying to --

A. What was your question?

Q. Okay. Well, first of all, you've now had a chance to read the document, the second page of Exhibit 3 --

A. Yes.

Q. -- correct? And does that refresh your recollection about some reorganization that took place at that time?

A. I know reading this document that there was any change in organization yet. It was a page to reassure, I guess, Wall Street and the dealers and all the constituents outside of Chrysler that he was going to -- Iacocca was going to retire but there was like a good bench of people behind that were ready to take over the company and run it well.

Q. Okay.

A. And he specifically named Bidwell and Bob Lutz and Steve Miller and Dick Dauch, Tom Gale and myself as part of that.

Q. All right. So actually by this point in time in 1991, you had roughly been the Vice President in charge of Vehicle Engineering for about three years according to your prior testimony; am I right in that?

A. Yeah, I became head of Engineering for Chrysler in November of '88, so by, yeah, about three years.

MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 4
9:13 a.m.

BY MR. MORGAN:

Q. Okay. All right. And, Mr. Castaing, I'm going to show you what I have marked as Exhibit Number 4, again two pages, a document dated December 14th of 1990, and again, I believe to be authored by you but you can identify it for me.

MS. JEFFREY: Take your time to read it.

A. I saw it, read it, yeah.
BY MR. MORGAN:
Q. Okay. And is this something that's familiar to you?
A. Yes, now that I read it again, it's familiar. I am familiar with it.
Q. It does bear your signature?
A. Yes.
Q. Okay. And this letter was sent to Chrysler employees in December of 1990; is that correct?
A. It was a letter sent to all of the engineering employees.
Q. Engineering employees, okay.
A. The people reporting to me, all of them.
Q. Okay. And in this document, the third bullet point down states that: Our major new product -- I'm sorry -- our major product programs, the ZJ, LH, T300, and PL are all on time and moving smoothly through the development cycle.
Do you see that there?
A. Yes.
Q. And that was a true statement at that time?
A. Yes.
Q. Now, so the ZJ was a major product program that you were in charge of; is that a fair statement?
A. The ZJ was the new Grand Cherokee that I was very much

involved at AMC since the car was basically engineered before the merger with Chrysler, and I was obviously in charge of it. The other cars are the large car platform, and the new pickup truck, the new Ram, and PL was the Neon, and all these program were moving along, and the reason why I was suggesting we were moving along is because the merger of the two company during the period of, AMC and Chrysler, during the period of time starting in July, summer of 1987 through, let's say, '89/'90 was stressful for everyone as when two companies merge, especially at a time where the company, Chrysler and AMC, were facing business challenges, the recession was there, and so we had to have lay-off and restructuring of organization and so on, and by the time I wrote this letter, despite all of that, we were making major progress in the integration of the two organization, the people coming from AMC and the one coming from Chrysler.

I was now in charge of all that, and as the letter said, we were doing good things, and I wanted to make sure that people would go on vacation for Christmas feeling good about what they have done.

Q. So did I understand you to say that the ZJ, which the public might understand or would understand is the

Grand Cherokee, was something that was developed and engineered at AMC before it was integrated into Chrysler?

A. Yes.

Q. I'm a little confused because this document is dated December of 1990, about three years after AMC had been acquired by Chrysler, and it says that the product program, including the ZJ, is moving through the development cycle. So I guess let me put this question to you: What did you mean by development cycle in this document?

A. In the case of ZJ, the initial plan for creating what at the time was a replacement for the Cherokee and became another Jeep as we were going along was started in early, early 19 -- the late part of '85 all the way through, and by the time in July of 1987 when we were told that we were going to merge with Chrysler, this program was 90% engineered. We were already building the skin prototype.

What happened in that, by the time Chrysler discovered that we were designing a new Jeep, they also were designing a similar product for Dodge, and for a year while we were continuing the development of the Grand Cherokee, testing the prototype, the program became like delayed for manufacturing reason and for

Chrysler to decide whether this car was going to be cancelled for making room for the new Dodge sport utility or if they were going to cancel the sport utility Dodge to make room for the ZJ.

And it took a year to sort it out, and that slowed down the program, and finally the program was set for production in July of 1991 in a new assembly plant in Detroit at Jefferson Avenue, which was yet to be built, explaining also some of the delay. So while the program was delayed, by the time I talked to our people in December 14, from engineering prospective, we were really doing our job, despite the fact that there had been a disruption due to the merger.

Q. Can you tell me who would have -- or strike the question.

We talked earlier about the 1987 organizational chart, December of '87 organizational chart identifying Mr. Viergutz's area as in charge of fuel systems. Can you tell me who would have developed the, been in charge of the development of the fuel system for the ZJ since you indicate that it was 90% done by July of '87?

A. Most probably by the same people. I don't remember exactly how we were organized before the merger, but what happened is that when Chrysler took us over, discovered our organization and decided that we were good at what we were doing, they said: Keep doing the Jeep program what you are doing. Stop making the car you are doing, and instead start making pickup trucks.

So they removed the responsibility of the cars, that went back to Highland Park, and gave us the new, the future Ram pickup, in fact, to engineer and some other work done on the previous generation pickup truck. That's why we became Jeep and Truck.

I suspect, but I don't remember, that the lead Chrysler people -- the lead AMC people like Owen and the other people on the chart didn't change too much during the transition.

Q. Okay. So that Mr. Viergutz came over from AMC with you?

A. Yeah.

Q. Okay. And you suspect most of the people in his organization were also former AMC employees who became then part of Chrysler at the time of the merger?

A. Yeah. Some people goes back several years now. MacAfee came from Jeep. Buser came from Jeep -- from AMC, sorry, I said Jeep, from AMC, yeah. We had only so few people join us in Highland Park, although some came as we took over the Truck program, like Mr. Von Rusten to the right, lower right, Herb Von Rusten was a senior guy in Engineering in Highland Park, and he was transferred to us.

Q. Okay. Can you tell me whether or not AMC had any design criteria for the fuel system integrity of the ZJ?

A. Engineering a car is driven in part but more importantly for things related to safety and so on by FMVSS, Federal motor regulation that dictate for every part of the car, the fuel system is one of them, but there is hundreds of regulation, books of regulation that each Engineering group know about when they start designing a new system like a fuel system, whether they relate to, for example, the type of fuel that it can be that the fuel system supposed to endure over the life of the car without corroding the pipes to the crush of the car to other things.

So we have many, many guardrail or criteria established for any car manufacturers when he studies any system of a car, every part of it, and this is supplemented by obviously some desire by the company to do better than that. So we typically on any system try to go up one notch or more, even regardless of the regulation.

Some are not regulated, some part of the car are not regulated, but the company has a standard for itself. So at the time AMC, like later Chrysler has books of specification and standard that the engineer were using for designing their part of the car. So there's no improvisation, if you wish, not when you design a new car. It's not just the thing that the chief engineer think it should be done this way or this way. There is a set of rules that you have to design within which is good for everyone.

Q. When you say there is a set of rules, you're saying that AMC had a set of rules that needed to be complied with in achieving fuel system integrity for the fuel system for the ZJ; is that correct?

A. Well, I say in the case of fuel integrity, it's driven by a Federal mandate about what it should be doing, it should be able to do.

Q. Are these, this set of rules, would these be considered the internal standards?

A. They are the fact original standard, yeah.

Q. Now is it your testimony that insofar as fuel system integrity was concerned, that AMC endeavored to comply with MVSS and no farther, or were they endeavoring to do better than FMVSS, Motor Vehicle Safety Standards?

A. Most of the time we will try to do a little better as a technology would permit to do that. We were more stringent two aspect of it. The aspect is, you know,

in the case of a system that is tested once to show to the -- during the state of production or development of a new car for production, we'll take, you know, concept prototype and then we'll take pilot cars before they come to the assembly line and test them for given FMVSS, and then typically our requirement will be tighter than the FMVSS standard, but also, we will test cars every year on the assembly line to make sure that as they were made in production, we will do some more testing randomly to make sure that we're complying along the way.
Q. Okay. You said, I think, that our requirements would be tighter than FMVSS. What did you mean by tighter?
A. Well, in the case of a fuel system, in the case of a rear crush, for example, the FMVSS, I remember the name 301 if I remember well, required that to crush the car where the car is impacted by FMVSS requirement by a vehicle coming in the back and crushing the back of the car, and one aspect of the test are described by the Federal standard is that it is you wait a while after the crash and you look underneath the car and you measure the leak, and there is a maximum amount of gas that is permitted by the FMVSS, at the time, it may have been changed now, but at the time, the standard in my days in the industry and, for example,

at Chrysler, we said we need to have the crash and it will be zero leaks, there will be no leaks. So there's an example of why we were going beyond the standard.
Q. Did you understand the Motor Vehicle Safety Standards, including 301 which deals with fuel system integrity, to be minimum standards?
A. They represent what the Federal Government after having discussed that with manufacturers and probably the insurance industry and compile accident reports and so on, at the time that's what they thought was the standard to design against.
Q. My question to you is: Did you understand those standards to be by definition of the Federal Government minimum standards?
A. Well, you have to pass them, yes.
Q. So yes, you understood them to be minimum standards?
A. No, I didn't say minimum. I said they are standards you pass.
Q. Yeah. My question to you is then: Did you understand that the Federal Government, itself, described those standards as minimum standards?
A. I don't remember the language of the FMVSS standards, so maybe that can be easily found if someone look at it.

Q. All right. Now I want to backtrack to an answer you gave a moment ago. You said that -- you were describing, I thought, the rear crash standard of 301, and you said you would crash, take a vehicle and hit another vehicle in the back; do you recall that?
A. At 30 miles an hour, yeah.
Q. You understood that was a vehicle-to-vehicle crash test?
A. Yeah, it was simulated by having some kind of a ram, like a -- the way to test, if I remember well, as it was run, you would have the car to be tested to be standing, and then you will ram behind a piece of steel going at a certain speed representing the impact energy of a car coming to impact you at 30 miles an hour.
Q. You said a piece of steel would be rammed into the rear of the vehicle being tested?
A. I'm trying to describe that to you like a chariot, if you wish, with a piece of steel pulled by a cable underneath, and they would ram the car at 30 miles an hour.
Q. Okay, so --
A. Then you will wait and see if the car leaked.
Q. So your earlier testimony that the 301 standard was or envisioned a vehicle striking another vehicle is

incorrect then --
MR. FUSCO: Object to the form.
BY MR. MORGAN:
Q. -- it was actually some sort of a steel barrier in your understanding?
MR. FUSCO: Object to the form.
A. I'm not sure I understand the question now.
BY MR. MORGAN:
Q. Yeah. Well, what was hitting the rear of the vehicle being tested, another vehicle or a rear-moving barrier; what is your understanding, sir?
A. Well, the FMV -- we were testing by the Federal regulations, so it was not for us to decide whether it was a car or truck or something.
Q. I didn't ask you that. I want to know what you understood the test to be. Was it a vehicle-to-vehicle test or a barrier-to-vehicle test?
A. It was a vehicle-to-vehicle test simulated by a barrier impact.
Q. As best as you can describe it, Mr. Castaing, describe the barrier that you understood was being used to simulate a vehicle.
A. For your benefit, maybe you find on the internet, YouTube, of showing impact of 301 test. They are all over the internet. They are public. So that the best

thing I suggest is best for the benefit of everyone, rather for me to try to define the detail of the vehicle that impact the back of the car, that would be the best thing I suggest we do.
Q. I just -- that's fine. I'm at this point in time testing your knowledge, and I can't do that on the internet. I can only ask you the question. I want you to describe for me, as best you recall, the barrier.
MR. FUSCO: Object to the form.
MS. JEFFREY: He already has described it, but if you have anything to add to what you already said, Go ahead.
A. Like I said --
MR. MORGAN: I think that, even though you have been admitted pro hac vice, violates the rule, counsel.
MS. JEFFREY: Go ahead.
MR. MORGAN: Just a little levity, you know. Lighten up.
A. Like I said earlier, the car is standing, the car to be tested is standing. There is a groove in the ground where you can pull a cable underneath the car, and you station the back of the car a certain distance, like a big cart, if you wish, on big wheels

with a big rectangle of steel bolted to the front, and the chariot has a certain mass, you know. Weight is added to it to attain this mass. And then at some point, let's say the cable pull this ram, if you wish, into the back of the car to -- at the speed of 30 miles an hour, and then it is -- cameras look at what happened, and there is a set of criterias that the body cannot be deformed to a certain degree, I don't remember all the detail, and then -- and coming back to your question about the fuel tank design then, there is a specific standard about leak of gas in the case of a rear impact.

BY MR. MORGAN:

Q. This rectangle of steel, can you, that you've just described, can you -- excuse me -- estimate for me its dimensions; how tall is it, how wide is it, how close to the ground does it come, that sort of thing?

A. Close to the ground like a real automobile, and it's as wide as a car and as tall as a car, let me put it this way.

Q. When you say "close to the ground like a real automobile," can you give me an estimate of the number of inches above the ground the bottom edge of that barrier would be?

MS. JEFFREY: Just let me object to form

because I think he said "as close to the ground as a real automobile," not "close to the ground like a real automobile." Go ahead and answer.
A. I don't remember, maybe 10 inches or something.
BY MR. MORGAN:
Q. Is this barrier a flat barrier?
A. Yes, defined by NHTSA.
Q. Sure. NHTSA in consultation, as you said, with the automobile companies agreed to make the minimum standard a flat barrier test, right?
A. No, that's not the way they think. NHTSA mission is to make sure that their standard improve the real, the real-life outcome of accident to such an extent, and they consult with the industry and at the end create a test that is replicable, that is not subject to interpretation and that does exactly the job that it's supposed to do. So it's not in half, you know, it's not an improvised thing. If the study said it was the way to go, it's because probably they did enough test and compare their test with the ram to other real-life accident to make sure in their mind it was appropriate.
Q. Tell the jury, Mr. Castaing, how much consulting you did with the Federal Government regarding the development of the rear crash standard and the tests

embodied in it.

MS. JEFFREY: Object to form.

BY MR. MORGAN:

Q. If any?

A. Yeah, I was not involved in that personally, and it preceded me when I started working in this country, so...

Q. Thank you?

MS. JEFFREY: Counsel, we've been going over an hour, so --

MR. MORGAN: If you'd like a break, I'm happy. I don't want to make anybody uncomfortable. If you need a comfort break, that's fine.

VIDEO TECHNICIAN: The time is now 9:39 and 5 seconds a.m. This marks the end of tape number one. We are off the record.

(Recess taken at 9:38 a.m.)

(Back on the record at 9:55 a.m.)

VIDEO TECHNICIAN: We are back on the record. The time is 9:55 and 55 seconds a.m. This marks the beginning of tape number two.

MR. FUSCO: This is Christopher Fusco. Before Mr. Morgan continues his questioning, I've become aware that Mr. Sheridan, one of the Plaintiffs' experts, is present in this deposition. I don't know

Mr. Sheridan. I never met him before today. I want to place on the record an objection to his presence as violating the New Jersey Court Rules. I don't believe he's here pursuant to leave of court. I believe that his presence here taints his testimony going forward for all this day, and that's the objection I want to place on the record. I don't want my silence to be deemed a waiver of that objection, and again, I'm not stopping any testimony, it's not my witness, but it's my view Plaintiff proceeds at their own peril.

MS. DeFILIPPO: I'd like to respond to that. Number one, we've been doing this deposition since 8:00 or a little after 8:00. It's almost 11:00 now. Mr. Sheridan has been sitting in front of you the entire time. When you walked into this room, you asked who all the parties were. You were advised of everybody who was here. If you had any problem, we would have discussed it and perhaps asked him to leave.

At this juncture, I deem any objection waived, and certainly Mr. Sheridan has been sitting here and not participating, and he is permitted to assist counsel, unless there is an objection, and you have not objected up to this point. So, therefore, I'm just going to continue and state this on the record.

MR. FUSCO: I am objecting. I don't know who he is. I've never met him before. I actually thought he might be Mr. Kline.

MS. DeFILIPPO: You knew he was an expert.

MR. FUSCO: Angel, I've never met this man before in my life.

MS. DeFILIPPO: You just said he's our expert. You said you never knew -- you don't know who he is.

MR. FUSCO: I don't know who he is. Now I do.

MS. DeFILIPPO: You just said it's the Plaintiffs' expert.

MR. FUSCO: Right, because I just found out who he was.

MS. DeFILIPPO: But now you're trying to tell me you don't know who he is.

MR. FUSCO: There's a right way and a wrong way.

MS. DeFILIPPO: No. We were open and up front with everyone in this room. We would have identified anyone. We did identify everyone. There is nothing about what's going on in this room that is in any way deceitful, and now after a couple of hours of deposition, you want to start an objection now. I think that's clearly improper. What's on the record is there for future.

MR. FUSCO: We're not going to decide this at this moment. I'm just placing my objection on the record. There will be motion practice to follow.

BY MR. MORGAN:

Q. All right. Mr. Castaing, we were discussing the rear crash barrier and other items related to Motor Vehicle Safety Standard 301, and you mentioned earlier that, and we discussed this briefly, our requirement is tighter, and I asked you, What do you mean by that, and you said, Well, as an example, zero leak as opposed to the Government permitting some leak.

Are there any other aspects in which Chrysler made its requirements tighter than the zero leak that you described earlier with respect to the rear crash fuel system integrity standard?

A. We might but I don't remember specifically. I cannot respond to your question with specific X.

Q. All right. Now just so that everyone understands, again, what this test is like, it's a barrier that you said is made of steel, and it is striking the rear of a vehicle. Now is it striking the entire rear of the vehicle, is there an offset component to it; can you

elucidate that for me?
A. As far as I remember, it impact the entire rear-end of the car.
Q. Okay. So the barrier impact does not analyze what would happen in an offset impact; is that true?
A. Sounds true.
Q. Okay. And an offset impact, just so again the jury understands what we're talking about, is what, sir?
A. In crash test offsets are where the impacting vehicle or barrier is not aligned with the car in front of it or coming from -- and with or without coming with an angle. So it's a more complicated test.
Q. Okay. So an offset impact would be not fully engaged but maybe an overlap of, say, 50% as an example; that's an offset impact, fair?
A. Yeah.
Q. Okay. Now can you tell me whether or not the flat barrier test for the rear impact in 301 evaluates what happens in an underride impact?
A. I don't -- I'm not sure I understand the term "underride".
Q. Okay. Well, let's see if we can define it between each other. If we had, instead of a barrier, we had actually two vehicles, each of them would have a bumper, one a rear bumper and one a front bumper.

With me so far?
A. Yeah.
Q. Those bumpers may or may not align. One may be higher than the other. Still with me?
A. Yeah.
Q. As an example, we know that an SUV generally rides a little higher off the ground than a smaller compact car or something like that. Do you understand that?
A. Uh-huh.
Q. Is that a yes?
A. Yes.
Q. Okay. That's what I mean by underride. If, in fact, one of them is mismatched and lower than the other, then in a rear impact, the impacting vehicle may underride the higher vehicle. Do you understand that concept?
A. Yeah.
Q. Okay. Can you tell me whether or not, as you understand the 301 rear impact test, it evaluates at all what happens in an underride impact that we've just now described?
A. I don't think it does.
Q. Okay.
MR. FUSCO: I'm sorry, Mr. Morgan. I have to complete my objection because I just realized one

more thing. I understand that this testimony is going to be used at the time of trial. Because of that and for the purposes of the record, I place a motion on the record to have Mr. Sheridan sequestered from this deposition, if used again for trial testimony, as it is a violation of New Jersey Rules on its face. Other than that, I remain with my prior objection.

MS. DeFILIPPO: What rule are you referring to, Mr. Fusco, what New Jersey Rule?

MR. FUSCO: I'm referring to our Court Rule about the sequestration of witnesses during trial testimony.

MS. DeFILIPPO: No. What Court Rule are you referring to which indicates that an expert is not permitted to be at a deposition or in court in any proceeding?

MR. FUSCO: Our rules, I think under --

MS. DeFILIPPO: What rule?

MR. FUSCO: I think under rule in the 4s tell us that parties that can be present are parties and their attorneys and --

MS. DeFILIPPO: I'm sorry. Go ahead.

MR. FUSCO: -- and I believe in certain circumstances in the State of New Jersey, a consultant can be, and I'm saying this frankly without having done the research on it, present in cases with leave of court. I don't believe that's occurred here. I also -- I also must have just heard it, again the reference to the jury, he's obviously -- he's a witness at trial, and I think we all know that you can't have witnesses for trial sitting around listening to other witnesses' trial testimony because it taints them. That's my objection. We're going to have motion practice to follow this, and that's as far as I'm going on this point.

MS. DeFILIPPO: We in New Jersey, just to make this clear, always are permitted to have experts such as our doctors in any medical cases sitting in listening to other doctors, unless there is an objection, and again, there was never an objection until hours into this deposition, and there was never any discussion of any objection about people other than parties and their witnesses being here. So we're back to your original objection, and I don't think that there is any provision made in the rules which says that Mr. Sheridan could not be in a deposition.

Now if you are going to persist in your objection with respect to Mr. Sheridan going forward after having no objection up to this point, then I'd like to know because we may have to discuss that.

MR. FUSCO: I think I was clear with my objection. First of all, my objection is not waived pursuant to New Jersey Rules, and second, you go forward at your own peril at this point. This is not my witness today. I placed my objection on the record and that's it.

MS. DeFILIPPO: Okay. I want to take a break at this point.

VIDEO TECHNICIAN: The time is now 10:05 and 32 seconds a.m. We are off the record.

(Recess taken at 10:05 a.m.)

(Back on the record at 10:09 a.m.)

VIDEO TECHNICIAN: We are back on the record. The time is 10:09 and 47 seconds a.m.

MS. DeFILIPPO: I'd just like to make a statement for the record that we're going to proceed as we have begun. It's now after 11 --

MS. JEFFREY: No, it's not. It's 10:00.

MS. DeFILIPPO: Sorry, after 10:00, I'm sorry, after 10:00 --

MR. FUSCO: It's 10:09 just so we're exact.

MS. DeFILIPPO: Yes. This deposition was scheduled to begin at 8. It did start a little after 8. In the meantime, the record should also reflect that Mr. Fusco has had every opportunity to speak with all attorneys in this room, including the attorney for Mr. Castaing, and had that opportunity at every juncture, including prior to the deposition, and I think we should just continue at this point.

MR. FUSCO: Listen, we're going to have -- we're not going to agree about this today. This is Chris Fusco. We're not going to agree about this today. Whoever I had a chance to talk to doesn't make a violation of our rules proper. No one ever told me Mr. Sheridan was going to be present today. Again, I don't know him. I've never met him before. It took me a little while to figure out who he was. I've placed an appropriate objection on the record. You don't agree with it. You've elected to proceed. Let's proceed.

MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 5
10:10 a.m.

BY MR. MORGAN:

Q. Mr. Castaing, I'm going to show you what I have marked as Castaing Deposition Exhibit Number 5 and ask if you can identify that for us.

A. I see it.

Q. Okay. And do you -- do you recognize the document?

A. No.

Q. Okay. Do you know a DE Dawkins?
A. Yes.
Q. And that would be Dale Dawkins?
A. Yes.
Q. Okay. And who is Dale Dawkins?
A. Dale Dawkins, when I joined AMC in the early part of the 1980s, Dale Dawkins was like the chief product planner of AMC.
Q. Did he remain in that role, or did he take up other roles?
A. I don't remember. This document give him another name at a later date, and I don't remember.
Q. Okay. This document, Exhibit 5, describes him as the general product manager of Jeep/Truck Operations, but you don't recall him in that role as I understand it; is that correct?
A. No.
Q. Okay. Do you understand the role of the general product manager of Jeep/Truck Operations based upon your prior experience?
A. In 1987, I can say for a fact that this was different from what -- no, I don't remember. I don't remember.
Q. So you don't remember what the general product manager of Jeep/Truck Operations did in 1987, which is the date of this document?

A. Yeah.
Q. Are you familiar with that position at all?
A. No. I recognize product planner name underneath him. So deBoer, Mr. House, Mr. Hill, Mr. Dilworth, and Mr. Nelson were product managers.
Q. So Mr. Dawkins also came over from AMC, I got that implication from your earlier testimony, is that correct?
A. When, you talk about when we merged with Chrysler?
Q. Right.
A. I don't remember if he did.
Q. Well, okay. Here's what I heard you say: When I came to AMC in the early 1980s, Dale Dawkins was the chief product planner.
A. Right.
Q. So he was with AMC --
A. Right.
Q. -- right? Did he not also go over to Chrysler?
A. That's what I don't remember.
Q. Okay.
A. He left -- he didn't stay very long if he was at Chrysler. I don't remember.
Q. Okay. Well, wasn't he the Chrysler safety director at a point in time?
A. He might. I don't remember.

Q. Did Chrysler to your knowledge in the 1990s have a safety director?
A. Yeah, we had an office run by Ron Boltz, now I remember, and Dale Dawkins was working for him.
Q. So the Safety Office was run by Ron Boltz, and you now recall that Dale Dawkins worked for Mr. Boltz; is that correct?
A. No, I didn't say that Ron Boltz was in charge of the Safety Office. I don't remember his title but it's somewhere here. I don't remember exactly how they were organized.
Q. Okay. Do you recall Mr. Dawkins as being part of Mr. Boltz's organization or not?
A. Yeah, I just said yes, I remember now.
Q. Okay, great. What was the task, as you understood it, of the Safety Office run by Mr. Boltz?
A. Ron Boltz's job was broader than -- he was the person that was the interface with Government agencies, like EPA, CARB in California. He was discussing with NHTSA. He would be the one that would advise us, make sure we knew that new regulations were coming. He would also -- in case of a recall campaign of any type, safety or not related to safety, he would be the one that makes sure that we understood that when the need for proceeding, and he would take the legal step

to announce that the proper way following legal guidelines in this country.

MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 6
10:16 a.m.

BY MR. MORGAN:
Q. Mr. Castaing, I'm going to show you what has been marked as Deposition Exhibit Number 6 and ask you to take a look at that for me.
A. I read it.
Q. Okay. Does this -- are you familiar with this document, Exhibit 6?
A. No.
Q. Does the document refresh your recollection regarding a lawsuit between the government and Chrysler back in 1997 over safety standards?
A. No, I don't remember this one.
Q. Okay. I want to draw your attention to the series of paragraphs that begins under the heading A Philosophical Battle. It's in the middle of the first page. Are you there?
A. Yeah.
Q. Okay. The second paragraph says: The agency says that if --
Agency meaning the National Highway Traffic

and Safety Administration, which as I understand it, and correct me if I'm wrong, is the arm of the Government that would administer the Motor Vehicle Safety Standards; am I correct?
A. Yes.
Q. Okay. The agency says that if automakers did not treat their standards as minimums, cars and trucks would not fail the tests.
Then the next paragraph says: Chrysler disagrees. Quote, The law says all you have to do is pass, close quote, Chrysler's safety director Dale Dawkins said in an interview before he retired in December. Quote, You build a margin in single vehicle tests to accommodate variations in testing. We do it so we pass, not because of some desire to exceed standards, close quote.
Do you agree with the sentiments expressed there by Mr. Dawkins?
MR. FUSCO: Object to the form.
A. I don't know the context, so I cannot -- I can speculate at what he meant but I'm not going to do that.
BY MR. MORGAN:
Q. And were you aware in 1997 that the Federal agency charged with administering the Motor Vehicle Safety

Standards was upset, in fact, that the automakers were not -- were treating the Motor Vehicle Safety Standards as minimums?

MR. FUSCO: Object to the form.

MS. JEFFREY: I join, agency being upset.

A. No, I'm not aware of that. No, I'm not aware of that.

BY MR. MORGAN:

Q. Upset enough to go to court over it?

MR. FUSCO: Object to the form.

MS. JEFFREY: Join.

BY MR. MORGAN:

Q. Mr. Castaing, as the article points out. Is it your testimony that you were unaware of a lawsuit between the Federal agency charged with administering the Motor Vehicle Safety Standards and Chrysler in the 1997 era, you knew nothing about it; is that your testimony?

MR. FUSCO: Object to form.

MS. JEFFREY: Join.

A. That's not what I said. I said I didn't remember it. We have many interaction in the car companies, it's a complex business, and I may have at the time been aware of it. I don't remember it.

BY MR. MORGAN:

Q. Well, how many times did Chrysler and the National

Highway Traffic and Safety Administration go to court over safety standards?

MR. FUSCO: Object to the form.

MS. JEFFREY: And foundation.

A. I don't know.

BY MR. MORGAN:

Q. Was it more than once?

MR. FUSCO: Object to the form.

A. I don't know. Best to ask Mr. Dawkins.

MS. JEFFREY: Don't say that.

MS. DeFILIPPO: Where is Mr. Dawkins? Ask where he is.

BY MR. MORGAN:

Q. Now earlier, Mr. Castaing, you testified that the ZJ was mostly complete when the merger between AMC and Chrysler took place, and at that time, you learned that Chrysler was working on an SUV of their own, and Chrysler learned you were working on the ZJ, the Grand Cherokee. Have I got it right?

A. Yes.

Q. And you said there was a delay and so forth. One thing I was a little unclear on. The Chrysler or the Dodge SUV, did it go forward, did it not go forward?

A. It didn't.

Q. Okay. And do you know that that -- can you tell me

about that -- or strike the question.
Are you familiar with something called the N-body?
A. Yeah, the N-body, I think, was the pickup truck, the small pickup truck for Chrysler.
Q. And was the N-body the basis of the SUV that Chrysler and Dodge were in the process of putting together when the two companies merged and then that got shelved?
A. I think so. I'm not sure but I think so.
Q. Okay, okay. And can you tell me, sir, with respect to that Dodge SUV based on the N-body, where was the fuel tank anticipated to be mounted, if you know?
A. No, I don't.
Q. Okay. Did you participate in meetings that led to the cancellation of the Dodge-based SUV and the elevation or the decision to do the Grand Cherokee?
A. Yes.
Q. Would there have been comparisons between the two vehicles discussed in these meetings?
MR. FUSCO: Object to the form.
A. Main discussion was what was going to be the future of Jeep, and the company had bought Jeep, within AMC, the gem or the part that Mr. Iacocca thought had great value were Jeep, and he sounded awkward for several of us. Not all of us. Some of us were of the view that

we would not do a new Grand Cherokee. Instead we would do another Dodge in this, in this segment.

So after some brief discussion, in fact, the decision was taken by Ben Bidwell who at the time was a Vice Chairman who decided that Jeep needed a new Grand Cherokee, and it was going to be the one we started doing.

BY MR. MORGAN:

Q. Was your view solicited with respect to the decision that Mr. Bidwell ultimately made?

A. In the sense that Bidwell asked me whether I was comfortable whether there was going to be a great Jeep, and I said yes.

Q. Okay. Did you believe that that was the correct decision, that the Grand Cherokee should take precedence over the Dodge SUV?

A. 3 million Grand Cherokee later, I think it was the right decision to do.

Q. Okay. So that's a yes?

A. Yes.

Q. Okay. Did you know that the fuel tank on that N-body based SUV was going to be mid-mounted, that is, in front of the rear axle?

A. No.

MR. FUSCO: Object to form.

BY MR. MORGAN:
Q. You did not know that?
A. No.
Q. Was fuel system integrity a parameter that was analyzed or considered in connection with the decision to go forward with the Grand Cherokee as opposed to the Dodge N-body based SUV?
A. These are not questions that arise because it's not the way programs are done. The Jeep Grand Cherokee was designed, like I said before the acquisition by Chrysler, to be a fully-compliant, very effective Jeep in all aspect that will delight the customer, provide them everything they wanted and obviously meet all the regulatory standards that apply, and so it was never a question on mind whether there was any part of the Grand Cherokee that was questionable. So I don't think the question was ever raised.
Q. Tell me what was done to assure fuel system integrity for the Grand Cherokee, Mr. Castaing, in an offset rear impact?
MR. FUSCO: Object to the form.
A. I don't know.
BY MR. MORGAN:
Q. Tell me what was done to assure fuel system integrity for the Jeep Grand Cherokee in an underride rear

impact?
MR. FUSCO: Object to the form.
A. It would be pure speculation on my part to discuss that. I don't know.
BY MR. MORGAN:
Q. Well, Mr. Castaing, you indicated that you were the head of Jeep/Truck Engineering and were deeply involved in the ZJ, were you not?
MR. FUSCO: Object to the form.
A. Yeah.
BY MR. MORGAN:
Q. And so I'm here to ask you questions about that. You understand that --
MR. FUSCO: Object to the form.
BY MR. MORGAN:
Q. -- right?
MS. JEFFREY: And if he doesn't know, he has to say he doesn't know.
MR. FUSCO: This is improper questioning.
MR. MORGAN: Please don't testify for the witness which the New Jersey Rules specifically prohibit, counsel.
MS. JEFFREY: Please don't ask him the same question 12 times when he said he doesn't know. It's ridiculous.

A. So repeat the question one more time.
BY MR. MORGAN:
Q. Yeah. What I'm getting at is that you were fully conversant with the design decisions made with respect to the Jeep Grand Cherokee, were you not?
MS. JEFFREY: Object to form.
A. I said earlier that as the head of Engineering and feeling liable for what we were doing, like always, we in all aspects of this business, I made sure that the people that were involved in engineering the car were competent, that they knew the target for the car and all aspects of it. They knew all the technical requirement, what the car was supposed to meet, including all the Federal standard and all aspect of it. And so that's the way we look at it.
So at the time we had, like I said earlier, books of standards, ours and the Federal standard, and they were used by our people to design the Grand Cherokee, and as long as I was comfortable that all the standards were met, I felt good about the project, like I said in my memo to the people. The ZJ was a good program going on.
BY MR. MORGAN:
Q. Well, Mr. Castaing, is it true that you would have attended engineering program reviews at Jeep/Truck

Engineering?
A. Yes, I did.
Q. What is an engineering program review?
A. It's what maybe I said in another way. Regularly I would attend program progress review or program reviews of the vehicle, you know, every three months or something like that and make sure that we were all sitting in a room with all the engineers involved or at least the management group and making sure that the progress were made and if there were issues, we were working together to resolve them.
Q. Do you recall any discussions about fuel system integrity for the ZJ after AMC was absorbed by Chrysler?
A. No.
Q. You have referred to regulatory compliance, I think. You're referring to 301?
A. Yeah, all of them. All the standards.
Q. All the standards. And we've already agreed that the 301 rear crash standard does not provide any information about offset impacts or underrides; do you recall that?
MS. JEFFREY: Object to form.
MR. FUSCO: Objection.
A. You said that.

BY MR. MORGAN:
Q. No. You said that.
A. No, I didn't.
MR. FUSCO: Please don't argue with the witness.
BY MR. MORGAN:
Q. Your testimony is on the record, Mr. Castaing. Let me make sure that I understand. You cannot on this record and under oath provide me with any information about what AMC and/or Chrysler did to protect its customers in Grand Cherokees in the event of an offset rear impact with respect to fuel system integrity; am I correct?
MR. FUSCO: Object to the form.
MS. JEFFREY: Join.
A. Like I said earlier, we made sure that all the known standard as laid out by NHTSA were complied with. That's what we complied with.
BY MR. MORGAN:
Q. What information does the 301 test provide with respect to an offset impact?
A. At the time there was the -- and NHTSA, you know -- I will say that at the time there was the state of the arts, if I may say it that way, that what the industry knew, that's what NHTSA required from us to do, and

that's what we did. Over time, it is well-known that the standard have been revised, other added and so on that didn't exist at the time. But at the time, it was 20, many years ago, we designed to the best practice at the time, and all the standard that were required by NHTSA to do, to use.
Q. Mr. Castaing, I'm going to move to strike your last answer as nonresponsive, and remember, I asked you at the outset to listen to the question and answer the question you're asked. I'd like you to do that for me. I'm going to have the court read my question back to you.
(The requested portion of the record was read by the reporter at 3:43 p.m. as follows:
"Question: What information does the 301 test provide with respect to an offset impact?")
A. I responded earlier that it is not an offset impact.
BY MR. MORGAN:
Q. What information does the 301 rear impact test provide with respect to underride impacts in the rear configuration?
MR. FUSCO: Object to the form.
A. This test was not designed to test that, I guess.

BY MR. MORGAN:
Q. The ZJ was introduced -- you said a little bit earlier, you gave us some clue. I want to make sure I get the right date, Mr. Castaing. You said that there was a decision made to build that ZJ in Detroit in 1991. What model year was it actually introduced for?
A. I think it was a '92 model year.
Q. And you gave some testimony earlier about state of the art. Is it your testimony that the Grand Cherokee when introduced in '92 with respect to fuel system integrity was, in fact, state of the art?
MR. FUSCO: Object to the form.
A. I mentioned state of the art in the sense that the legal expert at NHTSA evolved a standard, their studies, their observation of the marketplace, technology tell them that maybe the standard can be revised to be more broad, cover more areas. That's what I call the state of the art. But by 1991, the ZJ, the Grand Cherokee, was complying to everything that was known and with NHTSA standard.
As a matter of fact, I said earlier that the car was engineered by Chrysler -- by AMC people. It was tested by the Chrysler organization at our proving ground in Chelsea. So in a sense it was, again, a check and balance. If whatever our group

have missed, it would have been picked up by a new crew of engineers coming from the other side of the company to tell us that we could have done something better.

BY MR. MORGAN:

Q. Had the state of the art with respect to fuel system integrity and rear impact progressed in 1992 beyond what it was, say, in the '70s?

MS. JEFFREY: Object to foundation.

A. I'm not sure. I don't know -- I don't know when 301 was created. I knew it was there in the early part of the '90s -- the '80s, sorry.

MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 7
3:46 p.m.

BY MR. MORGAN:

Q. Let me ask you to take a look at Exhibit Number 7, Mr. Castaing, and ask you if you've ever seen that before?

A. I read it.

Q. Okay -- excuse me -- do you recognize any of the names on this document?

A. Yeah, I recognize Bob Sinclair who in some ways was my predecessor at Chrysler. This memo goes back to 1978.

Q. Have you ever seen this memo before today?

A. No.
Q. When you say Mr. Sinclair was your predecessor, what do you mean by that?
A. He was the -- you know, in my time, this was before my time, but in my time when I joined Chrysler, he was the VP of Engineering for Chrysler.
Q. I see, and then you ultimately became the VP of Engineering for Chrysler, and in that sense then you took over duties that had previously been done by Mr. Sinclair; do I have that right?
A. Yeah.
Q. If you would look at the document for a moment, the second paragraph says the following: Not only are the impact performance requirements of MVSS 301 pertinent to the design approach but the significant increase in the last few years in the numbers of product liability cases involving fuel system fires and increase in the size of the awards by sympathetic juries has to be recognized.
Now did you know that, sir, when you were helping to design the Grand Cherokee, the ZJ?
A. This, from what I read in his memo is dated 1978 and, therefore, these reflect on family of cars and trucks that were designed in the late '60s, early '70s. By that time I was not in this country, and so it

reflects the fact that that's were the observation of Mr. Sinclair on what they were dealing with at the time.
Q. I'm asking you this. I'm asking you at the time the ZJ was being designed, were you aware of that, of the statement contained in here?
A. No.
Q. Can you tell me whether or not you agreed with the statement contained in here that I just read, that not only is the impact performance requirements of FMVSS 301 pertinent but also the subject matter of product liability and increasing jury awards?
A. I don't know this background that caused Mr. Sinclair to say that, so no, I don't agree or disagree. I can speculate.
Q. All right. Are you familiar with something called the Ford Pinto?
A. Yeah.
Q. Are you familiar with the fact that the Ford Pinto passed the 301 test that you described earlier?
MR. FUSCO: Object to the form.
A. No, I don't know the case exactly, the detail of the Pinto case.
BY MR. MORGAN:
Q. Okay. So you're unaware that that Pinto met the same

minimum standards as the Grand Cherokee ZJ?
MR. FUSCO: Objection, asked and answered.
MS. JEFFREY: Join.
A. I just said I don't know the case of the Pinto.
BY MR. MORGAN:
Q. Okay. If you would take -- you indicated you know Mr. Sinclair. What about Baker, LL Baker; did you know that person at all?
A. I don't remember Mr. Baker.
Q. In the first paragraph, it also refers to some discussions between Messrs. Vining, I think it says Jeffe, Sperlich and Sinclair. Do you know any of those other people?
A. Sperlich was still at Chrysler when I joined, at the time of the merger between Chrysler and AMC, and he stay there for another year and then left the company. He was the -- he was President or something. That's the only one I knew of these people.
Q. I see, a highly-placed official at Chrysler?
A. Huh?
Q. A highly-placed official at Chrysler, President of something you said?
A. Yeah, I don't know in '78 where he was. I said when I got to know him.
Q. Right, when you got to know him --

A. He was the Senior President of product planning or something like that.
Q. Okay. And that would have been in '87, that's when you came across Mr. Sperlich?
A. The first time, yeah.
Q. Okay. If you would take a look at the second page of the document, and there is a discussion there of truck fuel tank location?
A. Uh-huh, yeah.
Q. And in here, it says: The same principles regarding fuel tank location apply to truck design. It is important that these larger fuel tanks are not only shielded from damage in a collision but do not break away from the truck and thereby spread fuel onto the roadway.
Do you agree with that statement, Mr. Castaing?
A. Agree to what, that we should not spill fuel on the roadway?
Q. That the principles regarding fuel tank location apply to truck design as well. It is important that these larger fuel tanks are not only shielded from damage in a collision but do not break away from the truck and thereby spread fuel on the highway.
Do you agree with that statement, sir?

MR. FUSCO: Object to the form.
A. I don't agree because it's kind of making a statement without the context. It's like saying car manufacturers should not build small cars because don't you know they are less safe than big cars. So it's not the way we think. We create cars for the need that we see in the marketplace, and we make them safe regardless of the architecture, so on. We design them to pass minimum standards agreed by the industry and NHTSA to make them safe. So I can say an argument that you should not spill gas on the road, yeah, no car should be rear-ending another one at 50 miles an hour. That would be dangerous. So what does that mean?
BY MR. MORGAN:
Q. Do I understand you to state on the record and under oath that you do not agree that larger fuel tanks should be shielded from damage in a collision with respect to trucks; do I have that right?
MR. FUSCO: Object to the form.
MS. JEFFREY: I join.
MR. FUSCO: It's improper.
A. I say I don't disagree nor agree because it's out of context.
BY MR. MORGAN:

Q. The next sentence says: The approach used by Mitsubishi on the SP-27 of locating the fuel tank ahead of the rear wheels appears to provide good protection for the tank.

My question to you is: Do you agree that locating the fuel tank ahead of the rear wheels appears to provide good protection for the tank?

MR. FUSCO: Object to form.

MS. JEFFREY: And object to form because he's talking about a specific Mitsubishi vehicle.

A. When you look at the marketplace today, fuel tanks are sometime in the front of the car, like on sports car from Germany. So there's no magic position for a fuel tank in a car. There's depending on the configuration of the car, the size of the car, the purpose of the vehicle. It would be in one location or the other. And they are -- and then -- but the engineers are there to make sure that regardless of where in the end the tank is located for packaging reason, for other reason, it would provide adequate safety to the occupant of the car.

BY MR. MORGAN:

Q. Mr. Castaing, we're not talking about some fancy German sports car right now; we're talking about trucks, okay?

MS. JEFFREY: And that question was about a Mitsubishi.
A. We're talking about a Mitsubishi right now.
BY MR. MORGAN:
Q. Mitsubishi truck.
MR. FUSCO: Counsel, you cannot mislead the witness under the rules. If you're talking about a specific car, then tell him. This is not like --
BY MR. MORGAN:
Q. Please look at the third paragraph. It says: Chrysler is investigating fuel tank relocation ahead of the rear wheels for vans and multipurpose vehicles, but present plans for pickups through 1983 and for MPVs and vans through 1985 have the fuel tank located behind the rear wheels.
Now, when you joined Chrysler in 1987, did you become aware that Chrysler was investigating fuel tank relocation ahead of the rear wheels for vans and multipurpose vehicles?
A. No. As a matter of fact, the work we did on trucks and vans since it was under my jurisdiction didn't include that.
MR. SACCO: I'm sorry, it did or did not?
THE WITNESS: Did not. Like I said, it was from 1987 --

MR. FUSCO: There's no question.
THE WITNESS: Okay.
BY MR. MORGAN:
Q. So during the time period that you were the head of first Jeep/Truck Engineering and then Vehicle Engineering at Chrysler, a period of time as I understood it from July of '87 until '96 I think you said, you were not investigating at any time during that era relocation of fuel tanks ahead of the rear wheels for vans and multipurpose vehicles; do I have that right?
A. We're not investigating. We were designing good cars and trucks that worked well and pass all the standards at the time.
Q. Were you considering at all placement of fuel tanks ahead of the rear axle during that era?
MR. FUSCO: Object to the form.
A. On what vehicle?
BY MR. MORGAN:
Q. Vans and multipurpose vehicles.
A. I don't think so.
Q. The next sentence reads: In vehicles both with and without bumpers, there is a concern with vertical height differences that create a mismatch with passenger car bumpers.

We discussed that earlier. That's another expression of the concept of underride, isn't it?

MR. FUSCO: Object to the form.

A. Ask the question. What is the question?

BY MR. MORGAN:

Q. Sure. The sentence reads: In vehicles both with and without bumpers, there is a concern with vertical height differences that create a mismatch with passenger car bumpers.

Do you see that sentence?

A. Yes.

Q. That's another expression of the concept of underride, isn't it?

MR. FUSCO: Object to the form.

MS. JEFFREY: Foundation.

A. Underride as you describe it, yeah.

BY MR. MORGAN:

Q. Then Mr. Baker says the following: Where fuel tank location behind the rear axle is all that is feasible, a protective impact deflection structure may have to be provided whether or not a bumper is provided.

Now you see that there, Mr. Castaing?

A. Yeah.

Q. Can you tell me with respect to the Jeep Grand Cherokee whether there was any consideration given to including a protective impact deflection structure to protect its tank in the event of rear impacts, particularly underrides?

MR. FUSCO: Object to the form.

A. Like I said, the Jeep Cherokee was designed to be a great Jeep. It is -- it is not a truck, per se, since this unibody construction, so some of the solution that are refer here to trucks do not apply to Jeeps. A Grand Cherokee is like a car, a tall car, you know, raised above the ground to go over rocks and do things that other cars can't do, and the car was designed the way it was designed with great deal of care about making everything work as a whole and meeting every safety standard we knew at the time, and we tested the Jeep several times, and we passed all the tests, and when the car was about to go into production, they were retested to make sure that we were meeting all the tests, and we passed them.

BY MR. MORGAN:

Q. Mr. Castaing, again I have to remind you, I have to move to strike your last answer as not responsive. You agreed at the outset to listen to the question and answer the question that's asked. I'm going to ask the court reporter to read my question back to you. Please answer my question, sir.

MR. FUSCO: I'd like to have the answer read back, also, because I think it is responsive.

MS. DeFILIPPO: If you're going to read back the answer, then he's going to have to read the question again so that he has the question so that we have a clean answer.

MR. MORGAN: There's no point in reading back the answer as well, counsel, to the examination of the witness. If you want to ask him that question again on your examination, you're free to do so.

MR. FUSCO: That's fine. I withdraw my objection.

MR. MORGAN: Or a question to which his answer would be responsive.

(The requested portion of the record was read by the reporter at 4:03 p.m. as follows:

"Question: Can you tell me with respect to the Jeep Grand Cherokee whether there was any consideration given to including a protective impact deflection structure to protect its tank in the event of rear impacts, particularly underrides?")

MR. FUSCO: I object to the form.

MS. JEFFREY: Join.

A. Like I said, the car was designed to do everything the car was supposed to do in the eyes of the customer, the target market for this vehicle. The tank was the way it was, and when we talk about rear structure -- there is a rear structure in the back of the vehicle to protect the tank. It is not an add-on. It's built into the structure of the car. That's why the Jeep Grand Cherokee passed all the FMVSS standards at the time. I don't know about underride standard. If you describe to me what it is, like it was later discussed and later in the history of the '90s bumper height where it become part of new standard by NHTSA, but until then, there was no standards. So if you know of one or someone that can tell you, there was no standard by SAE or any other organization of manufacturers that we can refer to. So we cannot design or think about designing anything underride if it is not a defined question.

BY MR. MORGAN:

Q. Please describe on the ZJ, sir, the protective impact deflection structure provided to protect the rear mounted tank?

MR. FUSCO: Object to the form.

MS. JEFFREY: Join.

A. I said it was built in.

BY MR. MORGAN:
Q. Yes.
A. That's why it passed all the tests.
Q. Describe it for me. What was the structure that was built in? You claim it was built in. You're the father of the ZJ. Describe for the jury what it was you built in that was the deflection structure to protect its tank in the event of rear impacts, particularly underrides?
MS. JEFFREY: Object.
MR. FUSCO: You said that, counsel.
THE WITNESS: I agree.
MR. FUSCO: I move --
MR. MORGAN: He said we built it in. I'd like to know what it is.
MR. FUSCO: I'd move to strike the part of counsel where he's testifying.
A. I cannot describe the back of a unibody easily in words, but clearly the body that is above the tank and the reinforcement, longitudinal rail that support the car underneath were there to protect the car, and that's why it was passing the test very well, the FMVSS 301. We didn't design the car for tests that didn't exist and, like I said earlier, if there was one, even not a public one, one that was done by an

association of manufacturers like Society of Automobile Engineers or so on, we may have looked at it, but I don't think there is one on the record.

BY MR. MORGAN:

Q. The last sentence of this paragraph says: An investigation whether to relocate the fuel tank or to provide impact deflecting structures is presently underway.

Did you ever learn of such an investigation, Mr. Castaing?

A. No. It may be in the end, investigation didn't discover anything.

Q. Mr. Castaing, are you familiar with the term crashworthiness?

A. Yeah, crashworthiness in general is characteristic of -- no, I'm not sure. It's a layman -- it's not a technical term in the sense that crashworthiness. Unless you define the context of that, it's hard to describe.

Q. Do you agree with this definition of crashworthiness? It is defined as the ability of a motor vehicle to protect its passengers from enhanced injuries after a collision.

MR. FUSCO: Object to the form.

A. That's the definition, yeah, not necessarily everybody

--

BY MR. MORGAN:

Q. I'm asking you if you agree with the definition?

A. I don't understand --

Q. You can agree or disagree. It's up to you.

A. I just say there's the word enhanced injury. I don't know. Can you read it again?

Q. Sure. Crashworthiness is defined as the ability of a motor vehicle to protect its passengers from enhanced injuries after a collision.

A. Well, this is kind of a short definition which does not really -- unless you define crashworthiness protection is always within the context of whether it's a front crash or rear crash of what speed you are getting into the wall or what speed someone is getting into your back, whether it is a pickup truck against a small car or vice versa, and describing injury is even more complicated. That's why I'm not sure on what some of this definition means.

Q. Mr. Castaing, do you agree that the manufacturer of a motor vehicle has a legal duty to design and manufacture a reasonably crashworthy product?

MS. JEFFREY: Object to form and foundation. It calls for a legal conclusion.

MR. FUSCO: Objection.

A. I agree that, like I said earlier, we as a group of engineers were committed to make sure that the ZJ and other cars, all the trucks we did were all compliant with crash-related standard established by the industry in the U.S. or in Europe or other countries where they are different, and doing so, we thought that we were doing the right thing, and for customers, which in the case of most of our vehicles have been proven -- I mean, I think the ZJ has a good record in that we made millions of them, and they were performing to the expectation in most of the case for customer in case of accidents.

BY MR. MORGAN:

Q. Do you agree that -- excuse me -- do you agree that the manufacturer has to include accidents among the intended uses of its product?

MS. JEFFREY: Object to form.

A. That's not what I -- I don't agree with that. I agree that obviously we design cars to sustain accidents. That's why over time and still today science has improved. Airbags have been multiplied in cars, and better understanding of offset crash have been taking place, and so we learn as an industry, and over time the state of the knowledge permit cars to continue to be safer. That doesn't mean that when we were

designing back then when it was less were unsafe.
Q. Would you agree with me, Mr. Castaing, that in a rear impact involving a Jeep Grand Cherokee, a ZJ, that if the fuel tank fails and a fire ensues and the occupant or occupants of that Grand Cherokee are burned and die as a result of their burns, that that person has suffered an enhanced injury?
MR. FUSCO: Object to form.
MS. JEFFREY: Form and foundation.
MR. FUSCO: Can you at least describe what you mean by fuel tank fails?
MR. MORGAN: It leaks its contents and the contents ignite.
MR. FUSCO: This is completely improper question, but --
A. What's the question? I don't understand the question.
BY MR. MORGAN:
Q. Here, I'm trying to find out from you if you would agree, let's take a hypothetical situation. There's a Jeep Grand Cherokee that was struck in the rear. Are you with me so far?
A. Uh-huh.
Q. Yes?
A. Yes.
Q. Okay. And that the occupants of that Jeep Grand

Cherokee may suffer some injury as a result of that impact; they are moved around quickly and they may hit things inside the vehicle and develop bruises or broken bones or other injuries. With me so far?
A. Yeah.
Q. Those are the injuries they would suffer in the crash. Are you with me so far?
A. Yeah.
Q. Okay. Now suppose the tank fails in such a way that the contents of the fuel tank are spilled out and they ignite in this crash. Are you with me?
A. It would be a tragedy.
Q. It certainly would be a tragedy, and the occupants of the vehicle are burned and they die as a result of the burns. Do you recognize those burn injuries as an enhanced injury resulting to the occupant that wouldn't have happened if the tank hadn't failed?
A. I don't understand the --
MR. FUSCO: Wait a minute. Object to the form. Does your hypothetical include any speed?
A. I don't understand what you are talking about.
MS. DeFILIPPO: Wait, whoa, whoa, whoa, hold on! You can't -- you can object to the form and you can indicate why you object to the form --
MR. FUSCO: I just did.

MS. DeFILIPPO: I understand that. You can indicate that you objected to the form because it was not all-inclusive in your mind, but you can't suggest things to the witness such that he then will be discussing what you want.

MR. MORGAN: I think your objection was clearly stated, counsel.

MR. FUSCO: I want to know what the hypothetical means.

MR. MORGAN: To create an answer for the witness.

MS. DeFILIPPO: Exactly.

MR. MORGAN: You're clearly in violation of the New Jersey Rules.

MR. FUSCO: I am not.

MR. MORGAN: And you're admitted to the Bar in New Jersey.

MR. FUSCO: And you're not.

MS. DeFILIPPO: I am because I'm the one sitting here who said that your objection was in every way intended to key in this witness as to what your thoughts were with respect to the question. If your objection is you object to the form because it's not all-inclusive, that's your general objection. You cannot then discuss specifics so that this witness then discusses specifics, and we can -- we don't have to argue about that. That is just plain and clear from the rule. We can read the rule again.

MS. JEFFREY: And I'm going to object for form and foundation on that.

MR. FUSCO: Proceed.

MS. JEFFREY: The term enhance.

MR. FUSCO: Proceed at your peril, counsel.

A. So I cannot respond to your question unless you describe to me what you call enhanced injuries.

BY MR. MORGAN:

Q. Sure.

A. I don't understand that. How about you use another word for me to understand better?

Q. I'm trying to explain to you what I mean by the concept. We talked about this person in the Grand Cherokee. They're rear-ended and they are jostled around inside of the vehicle as a result of the rear-ending. Are you with me so far?

A. Yeah.

Q. And they might receive some injuries like orthopedic injuries, broken bones, strains and sprains, things such as this nature. Still with me?

A. That might happen.

Q. Those are the injuries they received in the impact,

the initial impact, correct?
A. It's not correct. I understand what you're talking about.
MR. FUSCO: Object to form.
BY MR. MORGAN:
Q. They may be knocked unconscious, in fact, in this accident?
MR. FUSCO: Object to form.
BY MR. MORGAN:
Q. That would be an injury that they received in the impact. Are you with me?
MR. FUSCO: Let me just put a continuing objection to this entire line of questioning so I can save a little paper.
MR. MORGAN: That's fine.
A. So what is the question?
BY MR. MORGAN:
Q. As an example, an injury might be that they're knocked unconscious in this impact, right?
A. So what's the question?
Q. You agree with that?
A. I don't agree. I'm understanding what you are talking about.
Q. As a predicate, that's the injuries received in the accident or in the impact. Are you with me so far?

MR. FUSCO: Object to the form.
A. Yeah, I can speculate that that's what happened.
BY MR. MORGAN:
Q. Okay. Now once the crash is over with, if the fuel tank doesn't leak and the gasoline doesn't ignite, that person can sit there unconscious and wait for help to arrive, right?
MR. FUSCO: Object to the form.
MS. JEFFREY: Object to the form.
A. So what's the question then?
BY MR. MORGAN:
Q. If the fuel tank --
A. Why don't you tell me your question? You keep describing a story. Give me a question.
Q. I'm trying to get you there. You said you didn't understand, Mr. Castaing.
A. I still don't understand.
MS. JEFFREY: Let's not argue.
BY MR. MORGAN:
Q. I took you at your word. I'm simply trying to help you understand.
MS. JEFFREY: Ask a question.
BY MR. MORGAN:
Q. So if the fuel tank doesn't leak and the gasoline doesn't ignite and start burning up the vehicle, that

person can sit there and wait for help to arrive and get help for their injuries, whether they be orthopedic, neurologic, knocked unconscious and so forth; do you understand that, Mr. Castaing?

MR. FUSCO: Object to the form.

A. I understand your story. I still don't understand the question.

BY MR. MORGAN:

Q. In that context, therefore, if the fuel tank does leak, the fuel does ignite, the vehicle is burned up and the person dies as a result of their burns and other injuries related to the fire, that's an enhanced injury; do you understand that?

MR. FUSCO: Object to the form.

MS. JEFFREY: Join.

A. It was a tragedy.

BY MR. MORGAN:

Q. Do you agree that's an enhanced injury --

MR. FUSCO: Object to the form.

BY MR. MORGAN:

Q. -- over and above what would have been suffered in the crash in the first place?

A. I don't understand the terminology. It is a tragedy.

Q. Okay. Your testimony is you don't understand; do I have that right?

MR. FUSCO: Object to the form.
A. Your question when you say -- you want me to say that I understand what is an enhanced injury, and I said I don't understand this concept. It is tragic for people to be hurt --
BY MR. MORGAN:
Q. You've answered my question, Mr. Castaing. I'm going to move on to another subject matter.
A. Okay.
Q. You mentioned a couple things about the ZJ that I wanted to follow up on. You mentioned the term target market, and you also said the purpose of the ZJ. Let's start with the target market. What did you understand the Grand Cherokee, the ZJ's target market to be?
A. The ZJ, having learned from the success of the Cherokee Limited which at the time was selling very well and creating a new niche for people who were intrigued and enjoying the benefit of a, like a station wagon like space inside a vehicle, the implied safety of four-wheel drive in the winter and car that were well appointed, it was a nice engine, good transmission, leather interior. That created the beginning of a, of a trend versus passenger cars, and therefore, the ZJ was created to, you know, give the

customer more of the same in the same vein. So it was likely bigger. It was more refined. It had more space inside for the customer, for the passenger, it was a slightly bigger vehicle, but it still had -- we were, for example, women wanted to make sure that climbing in the four-wheel drive vehicle would be not too high for them despite willing and wanting to have all the off-road that most of the time they were not using but all the, you know, off-the-road or capabilities for the vehicle.

Therefore, come out was like ZJ was supposed to be comfortable and quiet and aiming at this new, new I would say group of customers that were affluent and interested in this type of vehicle.

Q. Okay. Well, I'm not sure I got an answer in there, so let me see if I can follow up and get some greater explanation from you.

You said something about women and you said something about affluence. Is it your testimony that the target market for the Grand Cherokee was affluent women?

A. No. It was for everybody.

Q. Okay.

A. But pay attention this --

Q. Let me make sure that you understand my question --

MS. JEFFREY: Let him finish his answer, please.

MR. MORGAN: He has answered my question. I want to pose another.

A. No, I have not. I've not responded to your question. Give me a chance to respond.

BY MR. MORGAN:

Q. Actually, you did respond. Everything that comes after "this" is not responsive, and I'm trying to keep you on track with all due respect.

MR. FUSCO: Counsel, you can not stop a witness from answering a question.

MR. MORGAN: The witness is not authorized to blather on on some other subject matter that is not part of the question.

MR. FUSCO: You're not authorized to blather on on anything in this proceeding, counsel.

MS. JEFFREY: Go ahead and finish your answer.

MR. FUSCO: Let him finish his answer.

A. You asked me the question whether it was designed to target women and affluent women for the Grand Cherokee, and I want to make clear that while they were an important target for us because we thought that trucks in the past have not been friendly to them, of course the Grand Cherokee was aiming at a traditional market which were men and people having the means -- when I say affluence is because the Grand Cherokee was not inexpensive. Therefore, you have to have a little revenue to be able to afford one was my full response.

MS. DeFILIPPO: I'm sorry, did we get an answer to the question of what the target market was for the ZJ?

MR. MORGAN: I don't think we have.

MS. DeFILIPPO: I might have missed it.

BY MR. MORGAN:

Q. What you gave me earlier, Mr. Castaing, was a list of what I think you believe are the attributes of the Grand Cherokee. I did not ask you for the attributes of the Grand Cherokee. I asked you what the target market is. Is it families, is it working people, is it use the truck for -- use the vehicle for deliveries, is it for hauling children around, is it for camping out in the woods; what's the target market for the vehicle? That was the question posed.

A. Well, some in the industry view the Cherokee and the Grand Cherokee as the predecessor of the sport utility boom and, in fact, when you say you have to know the market you're into, it's hard to define how big it would be and what it would be, but clearly we sensed with the Cherokee that we have cracked a new segment, and the segment were people that were using their vehicle with -- for many things, whether they were taking their kids to school like my wife did with the Grand Cherokee or they were taking -- or they were going camping in the woods or they were going to work every day or going to an evening with a tuxedo at night, and we were looking at this market which was there without necessarily being well defined of people that were moving away from maybe luxury cars, sports cars, family cars and so on and wanted to have -- and everybody will see an angle why a new sport utility were designed to be attractive to them.

BY MR. MORGAN:

Q. Can you tell me, Mr. Castaing, if the product plan for the Grand Cherokee included information about customer demographics?

A. I don't remember that. I'm pretty sure someone did that.

Q. Do you have -- can you define the term customer demographics?

A. So you're asking the question but you don't know what it means, or what is the question?

Q. I'm asking you if you know what it means, Mr. Castaing?

A. Typically in the industry or any industry when you sell something to a group of people, you try to predict what group you will be selling it, and it can be age group, where they live, their revenues, their jobs, their hobbies, their favorite TV programs and so on.

MR. MORGAN: I've just been informed that we have about 10 minutes or so left on the tape. This is a good spot to take a little break.

MS. JEFFREY: Take a break, okay.

VIDEO TECHNICIAN: The time is now 11:15 and 6 seconds a.m. This marks the end of tape number two. We are off the record.

(Recess taken at 11:15 a.m.)

(Back on the record at 11:44 a.m.)

VIDEO TECHNICIAN: We are back on the record. The time is 11:44 and 44 seconds a.m. This marks the beginning of tape number three.

BY MR. MORGAN:

Q. Mr. Castaing, with respect to the Grand Cherokee, the ZJ, can you identify for us the offerings that you understood to be its competitors, in other words, other vehicles in the market with whom you were competing for customers?

A. At the time and even after we launched it, we were different from everybody else because of our offering that we were offering a Jeep for people who had the perception that Jeep were versatile and can go anyplace, would not left you stranded. And so there were really no one that really in that niche that competed with us.
Q. So the Grand Cherokee had no competitors; is that your testimony?
A. Well, the numbers show that we, with all the type of vehicle that came along, like the Explorer, but they -- we sold many, many Cherokees, Grand Cherokees and they sold many, many Explorers, meaning that they were attracting a different group of people.
Q. Did you consider the Grand Cherokee Jeep to be a competitor of the Explorer?
A. Not really.
Q. So you weren't hoping to attract people that bought Explorers to buy Grand Cherokees and take market share --
A. No.
Q. -- you didn't want that; do I have that right?
A. Well, it's not that we didn't want that. We target people with a slightly different product, and people recognized that and people who wanted a Jeep came and

bought them, and we made a lot of them. And I know Explorer also had a grade success with probably people who had slightly different views of what they needed, and Explorers were not Jeep and, yeah, we knew that we were both successful, Ford and Chrysler did, but I don't think -- I don't remember that we were doing anything special to compete with Explorer.

Q. Well, I wasn't asking you if you were doing something just special to compete with Explorer. Perhaps we can -- well, let me follow up on a couple of things you just said.

You said we had a vehicle that was slightly different. Slightly different than what, the Explorer; is that what you meant to say?

A. I said slightly unique.

Q. Slightly unique meaning different than the Explorer, slightly different?

A. No, I'm not talking about the Explorer. Jeeps are Jeeps and we were building or rebuilding the brand, which was essential to our business plan, having Chrysler bought Jeep after we, you know, get Jeep sales solid again with the Cherokee Limited, like I said earlier, and we wanted to build on that and make Jeep again a significant brand on itself with this dealership that would do well with them and so on.

Q. You said the Cherokee Limited. Is that also known as the XJ?
A. Yeah, yes.
Q. Okay. Did the introduction of the ZJ reduce sales of the XJ?
A. Initially the great fear of salespeople, that they predicted that the new Grand Cherokee would kill the Cherokee and that the -- by the time -- by the time we launched the Grand Cherokee, dealers realized that people were still coming to the dealership to buy the old one, the Cherokee, and therefore, we restarted full production of Cherokees as we were cranking up production of the Grand Cherokees, and in fact, instead of being one substituting for the other, they both became together very successful for a long time.
Q. Are you familiar with the term market segment?
A. Yeah.
Q. What does that term mean to you?
A. Well, different segment. One way to look at that is by size of cars or can be also by demographics. It can be by -- product planners can cut or people doing data research can segment the market in many different ways, so...
Q. And what market segment would you place the Grand Cherokee in then?

A. Like I said earlier, it was designed to be feeding and supplying a good product for this growing interested group of people and something different from a station wagon, different from luxury cars and in between, offering the off-the-road potential, you know, I can go up north and it may snow -- I will not be stuck in a Jeep. If I go with another car, I may be stuck in the snow type of thing.

Q. Is the -- would that market segment be described as the SUV?

A. Well, SUV was born after -- the name was born after the fact when the planners discovered that others were having, as a matter of fact, bigger and bigger like four-wheel drive or not vehicle along, like the Explorer and others were came along and so on along the way.

Q. So would -- am I correct then that although maybe the name came a little bit later, that the Grand Cherokee was part of the SUV market segment like the Explorer was?

A. Yeah, the SUV market became millions of vehicles in this country. So it's hard to say -- you can bin them -- you can bin them together if you wish. It doesn't mean that they are the same.

Q. In that sense then, Chrysler was competing in the SUV market segment with its Grand Cherokee offerings and Cherokee offerings against, as an example, the Explorer; is that a fair statement?

A. No, I don't think that we were really competing because, like I said earlier, the Jeep had found a niche where we were good with ourself, and buyers of Explorer would not buy Jeep, and Jeep buyers would not buy Explorers.

Q. Just so that I'm clear, you would describe, although you say the name came later, a Grand Cherokee as an SUV; do I have that right?

A. You asked me if some people were binning them as SUV, yes.

Q. What does binning mean?

A. You create a segment and a product planner would say this car is in a segment and this car is in a segment and it's binned.

Q. Okay. What cars were in the same bin with or other vehicles, I should say, were in the same bin as the Grand Cherokee; was Explorer one of those vehicles?

A. Yeah, product planner may have put them together, but the demographics and people were selling them were different. Like I said, both of them were very, very successful in having different type of vehicle.

Q. Mr. Castaing, I asked you a different question. Were

the Grand Cherokee and the Explorer binned together?
A. Not in our mind.
Q. Is it your testimony on the record and under oath that no one at Chrysler considered the Explorer a competitor of the Grand Cherokee?
MS. JEFFREY: Object to form and foundation.
BY MR. MORGAN:
Q. You said "not in our mind." I assumed you meant Chrysler?
A. No. I said we, people that were really closely involved with that will look at -- at some point I explained I was in charge of the Jeep business when we organized this platform system, and we were clearly aware that we were building the Jeep brand, and we had something that we were selling, car proposition that was not directly -- we were not looking at an Explorer like our competition. They were there, they were doing well, and they were selling to different people.
Now if you ask me whether people at Chrysler may have binned them together, probably.
Q. What other vehicles would have been binned together with the Grand Cherokee and the Explorer?
A. Well, maybe Land Rovers, for example. I didn't say Explorer but Jeep can be -- there was another brand

that looks like Jeep, it's called Land Rover or Range Rover, and they were -- I'm saying we were more like them.

Q. Any others that you would say would have been binned together by at least some at Chrysler with the Grand Cherokee and the Explorer besides the Land Rover or the Range Rover?

A. I don't know. I don't know.

Q. What about the four-door GM or Chevy Blazer?

A. Say there are sport utilities by that time were popping up everywhere. Most of them bigger and bigger as time went made by Ford, by the Japanese. Everybody knew about the, you know, the growth of this segment of the market. The fact that they were binned together by analysts or by size or by whatever doesn't mean that as we were looking at our product, we look at it, and we always stick to our philosophy, at least until I was there, that the replacement for the ZJ was a YJ, I think --

MS. JEFFREY: WJ.

THE WITNESS: -- WJ came out in 1998, I think.

MS. JEFFREY: '99.

THE WITNESS: Right?

MS. JEFFREY: '99.

THE WITNESS: '99, which I was involved in, still I was at Chrysler when it was created, was following the same path to be offering something unique.
BY MR. MORGAN:
Q. What replaced the WJ since you've decided to go down that path?
A. What?
MS. JEFFREY: Object to form.
BY MR. MORGAN:
Q. What replaced the WJ since you decided to go down that path?
A. Well, it was done by a different group, different company.
Q. What company was that?
A. Daimler.
Q. Daimler. You mean Mercedes?
MS. JEFFREY: No, object to form.
A. Daimler.
BY MR. MORGAN:
Q. Daimler.
A. So whatever they did, I was not there, and I'm not sure, but it is well-known that what they did didn't work too well.
Q. Are you familiar with something called a product

planning committee --
A. Yeah.
Q. -- at Chrysler when you were there?
A. Yeah.
Q. Did you regularly attend product planning committee meetings?
A. Yeah.
Q. Did Mr. Lutz also so attend?
A. Yeah.
Q. What about Mr. Iacocca?
A. No, he would not typically attend.
Q. Okay. And what was discussed at these product planning meetings that you attended, Mr. Castaing, with respect to market segment or binning together vehicles, if anything?
MS. JEFFREY: Object.
A. We were not discussing binning. We were discussing product plans.
BY MR. MORGAN:
Q. In discussing those product plans, would you also have consideration of competitive offerings; in other words, Explorer is going to have this size engine, we got to have an engine that's comparable, Explorer is going to have this kind of transmission, we've got to have a transmission that's comparable, things like

that as an example?
A. We were discussing the content of cars to make them competitive and attractive for the segment we wanted or the group of people we thought we knew what they wanted, and in some case, we had offering, like the Ram truck, where we wanted to -- we started from not being a real competitor in the marketplace against Ford and GM, therefore, we in the case of planning the Ram, we were very much aware of what we needed to be at compared to them because they were holding the, the market leadership.
In the case of Jeep, we thought we were on a different path. We had different vehicle with -- it was, like I said earlier, a unibody. It was the only sport utility that was a unibody for the reason I explained earlier. There's advantage to it which are weight, access for small people into the car, sitting in the car, make the car more solid, and it makes not only better four-wheel drive if you view it this way, especially for the user of the ZJ.
Q. Was there a Jeep product planning committee?
A. No. Jeeps were brought before the big planning committee.
Q. Okay. So Jeeps were brought before the corporation's product planning committee?

A. There was only one product planning committee for Chrysler.
Q. When the Jeep was brought before the product planning committee for Chrysler, was there a discussion of competitive offerings, what's the Explorer going to be like, what's the Blazer going to be like, what's the Toyota Highlander going to be like and so forth?
A. Like I said earlier, we were so much aware of the uniqueness of the Jeep name and what it resonated, that we were more concerned about keeping the Jeep-ness, the uniqueness of what we were doing rather than saying the other people are this and the other people are that, what shall we have it.
So we always try, for example, to have excellent four-wheel drive system better than anybody in the industry, and that we were doing. We wanted to have responsive engine like cars and so on. The ZJ was by far the most effective -- you know, it was a very effective vehicle from the weight standpoint --
Q. Is it your --
A. So --
Q. I'm sorry, were you done?
A. That's it.
Q. Is it your testimony that the product planning committee when the Jeeps were brought before it

ignored Chrysler's competitive offerings?
A. No, I didn't say that.
Q. So there was discussion then of the features and attributes of its competitors such as the Explorer?
A. No. We wanted to be different.
Q. I didn't ask you if you wanted to be different. I asked you whether or not --
A. Just clarify what you asked me.
Q. Wouldn't you -- if you want to be different, don't you have to understand what the competition is doing, Mr. Castaing; isn't that inherent in wanting to be different? Different from what, true?
A. Yeah.
Q. So you did have to understand what the competitive offerings were doing, right?
A. Maybe selectively probably. Like I said --
Q. Are you familiar with something -- I'm sorry -- are you familiar with something called competitive teardown?
A. Yes.
Q. What is competitive teardown?
A. Competitive teardown is to learn from others what they do better than you so that you can, you know, learn from them and/or confirm that you are doing better than the other ones.

Q. And how does that work; what actually occurs when a vehicle is, when it goes through competitive teardown?
A. It is just what it said. It's being torn down. All the parts are laid up on the wall, and people come and we, from me to -- and Bob Lutz would join us, and we would go and look at a teardown every other week of somebody else car to see how they were doing, what they were doing, and so on. It's just a matter of staying competitive and learning, continuing to learn.
Q. So I think you just said on a weekly basis you would --
A. Every other week I said.
Q. Every other week you said you would go and look at competitive teardown --
A. Typically.
Q. -- what Ford was doing, GM was doing, Toyota was doing in the market segments that you were offering vehicles in as well?
A. Not necessarily the same seg --
Q. Is that right?
A. No, not necessarily in the same segment.
Q. But there were same segment offerings competitively torn down, true?
A. Yeah. Like I said, the pickup truck was a good example of that.

Q. Are you familiar with the term reverse engineering?
A. Yes.
Q. What is reverse engineering?
A. Well, it depends the application of it, but it could be that if you find a part that seems to be doing the same job as yours and in the meantime seems to be lighter or cheaper to produce or has some other characteristic that you like, you can say, Maybe I can, if they're not protected by a patent, you can say, Maybe I should learn from this part, look at it and see how they've done it and then inspire it next time you make a similar part.
Q. When you made your competitive teardown reviews, Mr. Castaing, would that include consideration of the fuel system components that Chrysler's competitors were using?
A. Well, it was all there, so we were looking at everything.
Q. Okay. And you were also looking at the placement of these components in the vehicles, I assume?
A. Yeah.
Q. Yes?
A. Yeah. It doesn't mean that because you look at something, you say I can do that on another car. It just mean --

Q. Were you at Chrysler concerned about what your competition was doing with respect to the ZJ; did you think that the competition was attempting to attract the owners of or potential owners of ZJs to buy their vehicle instead?
A. Yeah, every car company was always concerned about other people and getting market share to detriment, so yes. This is the game we're going to. You have to continue to improve and satisfy your customer so they don't desert you, or when you come up with a new car, to make it attractive enough that people move from their old other car into your business.
Q. And what did Chrysler do about that subject matter? You said they were always concerned. What did they do about that concern to make sure, as best they could, that their ZJ customers or potential ZJ customers didn't go elsewhere?
A. I didn't say concern myself. This I said is the business you're into when you are competitive. You have to watch what the other people do to stay competitive, and it's something you do every day. Every time there is a new car come up at the auto show, we go see it and see what they have done, the same way they do to yours.
Q. Do you know where the Explorer fuel tank was placed?

A. It came from a pickup truck, so it may have been underneath the car because they have the room for such in there.
Q. I'm trying to make sure I understand. Do you know where it was placed?
A. Yeah.
MR. FUSCO: Object to form.
BY MR. MORGAN:
Q. Where was it placed?
A. I believe that the Explorer came from, the chassis of the Explorer -- the Explorer is not a unibody. The Explorer was a pickup base sport utilities, and most likely the tank was underneath like they are on pickup trucks.
Q. Where like they are on pickup trucks? I'm not sure what you're saying. Where was the tank located, can you tell me?
MS. JEFFREY: If you know.
A. No, I will not say. I don't remember.
BY MR. MORGAN:
Q. Okay. What about on the four-door GM or Chevy Blazer, particularly the S-10; do you know where the fuel tank was located on that vehicle?
A. Like I said, they were trucks that were totally different from us. They are truck base like the

Toyota and so on. They were different from us.
Q. That's not the question I asked you, Mr. Castaing. Please answer my question.
A. I just said what I said.
Q. You said they were a truck. I didn't ask you that. I asked you where were the fuel tanks located, Mr. Castaing?
MS. JEFFREY: He wants to know if you know where they were located.
A. Exactly, no, I don't know.
BY MR. MORGAN:
Q. What about the Toyota Highlander; do you know where the fuel tank was located on that vehicle?
A. Same response.
Q. What about the Dodge Durango?
A. Dodge Durango I know because we were in charge of that. It was underneath the car, underneath the chassis in front of the rear axle like the Ram.
Q. When you say underneath the chassis, what do you mean?
A. Underneath the bed I think is what I mean.
Q. You mean between the frame rails and in front of the rear axle?
A. Yeah.
MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 8

12:08 p.m.

BY MR. MORGAN:

Q. Let me show you what I have marked as Exhibit Number 8, Mr. Castaing, and ask you if you've ever seen that before?

A. Well, I don't remember this document, but it's typical of what I was talking earlier having specification for the engineers to follow. If it is -- I don't know what date this was.

MS. JEFFREY: Sometimes they're not dated.

A. I don't know if it was up-to-date or whatever.

BY MR. MORGAN:

Q. I believe this comes from 1988, Mr. Castaing.

A. Well, it's not written on it, but this look like, looks like a typical Chrysler or portion of a book talking about how to design a fuel system for a car for engineers to follow and learn from each other, and these guidelines were updated over the years as a new idea would come up.

MS. JEFFREY: I'd just like to put something on the record here. This is a document that we did produce in this case subject to protective order, and I'm not seeing any protective order markings on it. So I'd prefer that the record reflect the document as protected in this case.

MS. DeFILIPPO: That's fine. I don't know why that is but that's fine.

MS. JEFFREY: I don't know why a lot of these documents don't have a protective order but maybe it was redacted off or something.

MR. MORGAN: Maybe they were obtained from a different source besides you. I don't know.

MS. JEFFREY: Well, usually, I mean, we don't produce this document without a protective order.

MS. DeFILIPPO: Is that document a 1988 document that you produced?

MS. JEFFREY: I believe it's from the mid-'80s. It doesn't say on here. We produced two of them and this is one of the ones we produced.

MR. FUSCO: Do you want this portion of the testimony to be under seal just so that issue --

MS. JEFFREY: No.

MR. MORGAN: Whatever you want.

BY MR. MORGAN:

Q. Mr. Castaing, do you think there's any competitive advantage in 2011 to a document from the mid-1980s?

MS. JEFFREY: It doesn't matter what he thinks, and I'm going to direct him not to answer that. We have a protective order we placed in this case.

MR. MORGAN: Whoa, wait a minute! Is there a privilege called for with my question?

MR. FUSCO: You can mark it and move on.

MR. MORGAN: Whatever you want to do.

BY MR. MORGAN:

Q. Mr. Castaing, when you and your colleagues were designing the fuel system for the Grand Cherokee, were you aware that rear impacts were known to occur and would likely occur to Grand Cherokees once placed in the market?

A. Yeah. I have to say that, simplify, a car team of 600 engineers and technicians designing that, and they are -- they know what their job is, and they use document like that to remind themselves what they are supposed to do, this and, like I said earlier, FMVSS, collection of standard, they follow that. These people, themselves and their family are going to drive these cars. So why we consider this as a business of earlier we were saying you pass the test. We passed the test because the people who create these car drive them. Their kids drive in them. My kids were driven for ten years in a Grand Cherokee by my wife. So let's be clear on that.

Q. Somewhere in there I hope there's an answer.

MS. JEFFREY: Yes, he responded yes. His first word was yes.

BY MR. MORGAN:

Q. Okay. Everything after that is clearly not responsive, Mr. Castaing, and again, I'd ask you to listen to the question and answer the question you're asked.

A. I listened carefully to your question and tried to respond the best I can.

Q. I'm not here for your speeches; I'm here for your testimony.

Now, within that set of rear impacts, was it, that you indicated were known to occur, would offset rear impacts also be known to occur at the time you and your colleagues were designing the fuel system for the Grand Cherokee?

A. I think that the state of the art, like I said earlier in the previous question, of what we knew about impact, ourselves, the industry and NHTSA were such that they were still working in progress. The fact that -- so went by an organization like the one I described, this group of engineers working together, designed the car for what they know at the time, and there was no offset discussion at the time that we could design and say, We know what it takes to create a countermeasure on an offset impact because it's not defined.

So the car was designed with what we knew at the time, best practice in the industry, and I think the ZJ for the cross of its life served the customer very well and didn't have a record of being prone to any kind of accident or anything, so...

Q. Again, Mr. Castaing, I would really appreciate it if you'd answer the question that is put to you.

Were offset rear impacts known to occur at the time the design decisions were being made for the fuel system for the Grand Cherokee, including but not limited to its location?

MR. FUSCO: Object to the form.

A. I thought I responded to that already, so...

BY MR. MORGAN:

Q. Did you say yes?

A. I said yes, but --

Q. Thank you. Now was it also known that underride impacts, rear underride impacts would occur once the Grand Cherokee was placed into the hands of the driving public?

A. We knew that. We knew also frankly that the tests we were passing were at 30 miles an hour, and there are a lot of accidents that happen at 40, 50, where the energy and the shock is three times, four times. So you know that when you design a car, but you design for what you know and the standard is at the time.

Q. Was it known at the time that these decisions were being made or did you have some knowledge as to the threshold of impact energy in a rear impact that would be likely to cause death to the occupants of the vehicle as a result of the impact as opposed to any other event?

MS. JEFFREY: Object to form and foundation.

A. I'm not sure I understand the question. Why don't you clarify it and --

BY MR. MORGAN:

Q. I'm trying to find out, you said, Well, you know, while we designed to 30 miles an hour, we knew that 40 and 50-mile-per-hour impacts were occurring. I was following up on that subject matter.

MS. JEFFREY: It was a confusing question, I think.

MR. MORGAN: That's why I'm repeating --

MS. JEFFREY: Okay.

MR. MORGAN: -- for the witness the question. I don't think it was confusing, and your comment is not an objection --

MS. JEFFREY: It was convoluted as well but go ahead.

MR. MORGAN: -- and of course is, therefore, not permitted under the Court Rules but you're admitted and I'm not.

(Discussion off the record at 12:16 p.m.)

(Back on the record at 12:16 p.m.)

BY MR. MORGAN:

Q. My point to you or my inquiry of you, Mr. Castaing, is: Was there any knowledge amongst you and your colleagues when you were designing the fuel system for the Grand Cherokee as to what the threshold was of impact energy at which occupants of the Grand Cherokee could be expected to die as a result of the injuries received solely due to the impact?

A. Technically when you pass a test like the NHTSA tests, you know that all accident below the speed of this impact typically will be keeping the occupant of the vehicle reasonably safe. We knew, also, that most accident or little bit above the limit will be also favorable. But then if you speculate about what is thought to become a deadly accident, when it start a fire, we don't know. We don't know.

Q. I'm not asking you to speculate. I'm asking whether or not --

A. That's what I just tell you.
Q. -- whether or not you considered the issue, and if you tell me, We didn't know, that's fine, that's the answer. Is that your answer, we didn't know?
MR. FUSCO: Object to form.
A. You asked me for a threshold.
BY MR. MORGAN:
Q. Yes, sir.
A. I say I didn't know the threshold.
Q. Okay.
A. I was trying to explain that.
Q. Now this -- I'm sorry -- Exhibit 8, you said that this is described as fuel supply systems design guidelines, and you -- while I think you said you weren't familiar with this document in particular, you're familiar with documents of this type; am I right?
A. Yes.
Q. And you said it would be continually updated over time, right?
A. Yes.
Q. Okay. Now what does the term design guidelines mean to you; does this mean that you and your colleagues in the Engineering department had to comply with these guidelines or not?
A. Guidelines are tools for guiding engineers to optimize

the design of the new car but still keeping into a framework where that the knowledge of what we have learned or the learning that's been on previous cars on the road, in accident or in service or whatever is, is taken in account. So this is kind of a guide for engineers to look at, and it shows that there was inside one for different type of configuration of fuel tank, including the one like the one the ZJ was equipped with.

Q. Okay. Would you look at the third page of the document, please?

A. Yeah.

Q. It says Number 1, fuel tank at the top there; do you see that?

A. Yes.

Q. I'd like you to take a look at Paragraph 2 under basic configurations.

A. Yeah.

Q. Okay. It says: The tank should be located in a manner that avoids known impact areas and provides isolation from the passenger compartment.

Do you see that there?

A. Yeah.

Q. You have testified in this case that you were aware at the time that the Grand Cherokee was being designed that the rear was an area that impacts would occur, that offset impacts could occur and that underride impacts would occur, correct; you remember giving that testimony?

A. Uh-huh.

MS. JEFFREY: Yes?

BY MR. MORGAN:

Q. True?

A. Uh-huh.

Q. That's a yes?

A. Yeah.

Q. Okay. So if -- would you agree with me that the tank on the ZJ was located in an area of known impact?

A. Well, in this particular context, impact is like you come down from a curb and the back of the vehicle come down and it touch the curb. Is not impact in the sense of the FMVSS standard. Impact is, you may know that, for example, there is under the Grand Cherokee, there is a shield underneath that is protecting Jeep from when they go off road to bottom and tank will be perforated by a piece of rock. So this is what he means in the context. It's not -- it's not saying that, that the tank cannot be put into the back of a car.

As a matter of fact, the next page show

that if you do it and put it in the back of the car, on Page 4, here's the way it should be done.

Q. So it's your testimony that Item Number 2 for the basic configuration of the fuel tank where it says, The tank should be located in a manner that avoids known impact areas, has nothing to do with impacts that occur in motor vehicle accidents; do I have that right?

A. Impact, impact, yeah, like an FMVSS test.

Q. Okay. .

A. This is not -- this is impact for, like I said, where the tank would be open like underneath, that's why I just mentioned the shield, to be impacting because you go over a rock and you, off road, and you come down on it and it can punch the tank, but it's not impact in the sense of, of -- if this was -- if I was not talking -- if I were not telling you what it is, why would we have shown a recommended position for rear-mounted tank on the next page? So the same people who wrote that knew that the tank could be put in different position.

Q. Mr. Castaing, I just want to know if I have it right. I'm going to have the court reporter read back to you my question, and if you would, please, sir, answer my question.

(The requested portion of the record was read by the reporter at 12:23 p.m. as follows:

"Question: So it's your testimony that Item Number 2 for the basic configuration of the fuel tank where it says, The tank should be located in a manner that avoids known impact areas, has nothing to do with impacts that occur in motor vehicle accidents; do I have that right?")

THE WITNESS: Can you read my response?

MS. JEFFREY: No. Just answer.

BY MR. MORGAN:

Q. Answer the question, please.

A. Like I said earlier, the impact that is talked about here is not the one you are referring to in a motor, in a motor accident where a car will crash into the back of another one. This is impact on other things.

Q. Now, Mr. Castaing, you've testified earlier on this record you've never seen this document before today. So tell me, what is the source of your knowledge that the term "impact" here doesn't mean impacts in accidents?

A. Because on the next page, the document say if, like in a ZJ, the proper packaging of the tank is behind the rear wheel in the back of the car, here is the recommended way of doing that, so --

MR. FUSCO: Can you tell us the page number because you said next page?

THE WITNESS: Page 4.

MS. JEFFREY: It's the fourth page, I think.

THE WITNESS: The fourth page of the package. Sorry. The chapter is called -- maybe I don't read it right but --

Yeah, I did read it right.

MS. JEFFREY: Okay. There's no question. Let's just wait.

THE WITNESS: Just comforting myself.

BY MR. MORGAN:

Q. Looking at Paragraph 2, again, basic configuration, it goes on to say that the fuel supply department is to be consulted during advance fuel tank packaging studies; do you see that there?

A. Yes.

Q. Are you familiar with something called a fuel supply department?

A. Yeah, they are people among the engineers involved in the creation of the car. They are people that typically they are the fuel tank people and they manage all the piping, the pumping and all of that from the tank, and this group are the people that have been talked to when the architect of the car that say the passenger are going to be sitting here, the rear passenger there, here's going to be where the spare wheel is and so on, and that's where the fuel tank would be. They are consulted because they are part of the process to design the car.

Q. Did the fuel supply department have any responsibility for meeting the fuel integrity standards of the Government?

A. By themself, no, because the crash test that are qualifying the car good for production, the result of were engineer working together, the engine people designing the body around and, you know, the shell underneath the tank, where it is. The people will understand a dynamic of crash. So it's a group of -- it's a collective responsibility to make sure that the test is passed properly.

Q. And so your testimony is that Paragraph 2 that talks about the tank being located in a manner that avoids known impact areas and that the fuel supply department should be consulted regarding that is just as to so it doesn't get hit by a curb or if you're off road, things like that; do I have that right?

A. Yes, that's what this document said.
Q. Okay. Just take a look at the last page of the document, if you would, Item Number 9, Subparagraph 2 of Item Number 9.
A. Yeah.
Q. Would you read that into the record, please, sir, out loud?
A. Let me read to first understand what it is.
It says: Government Safety Standards 1 FMVSS 581, Bumper Impact Standard.
Is that the one I should read?
MS. JEFFREY: I think he wants 2. He means this one here.
BY MR. MORGAN:
Q. Number 2, yes.
A. Oh, okay.
Q. The record is clear I said Number 2.
A. Number 2 is: FMVSS 301, Fuel Integrity Standard. The fuel supply department has the overall responsibility for meeting the subject standard. A 301 steering committee chaired by the fuel supply department meets biweekly to review compliance status. This forum is used to evaluate changes to the vehicle for their possible effect on the standard and to arrange for any necessary testing and/or changes.

Q. Is that the same fuel supply department that's referred to in Paragraph 2 under Fuel Tank Basic Configuration on Page 2 of the document?
A. Yeah.
Q. Thank you. Now you said something earlier about a shield being provided to prevent perforation to the tank. What was that shield called?
A. If I remember the name but it's a metal that is bolted to the frame of the car or the rails underneath the car to protect the tank.
Q. Is it sometimes referred to as a skid plate?
A. Skid plates typically are on the front of the car more likely. I don't remember the name they call it.
Q. All right. In any event, you said there was a shield that was available, as I understand it, for the Grand Cherokee to prevent perforation of the tank in certain circumstances; do I have that right?
A. I don't know if it was an option for people doing, with special off-road configuration, or if it was there in some form or another, another configuration. I don't know that.
Q. Would you agree with me that this shield is a protective impact deflection structure?
MS. JEFFREY: Object to form.
A. Like I said earlier, the impact they are talking about

is the one that you get when the car go on the road and there is a piece of rock in the middle of it and you can perforate the tank by letting the car drop on the tank.

BY MR. MORGAN:

Q. Mr. Castaing --

A. It's not an impact in the sense of FMVSS 301.

Q. -- I'm asking you the question: Is that shield a protective impact deflection structure?

MR. FUSCO: Object to the form.

MS. JEFFREY: That's a phrase used by someone ten years before he came into the company.

MR. MORGAN: Please don't suggest an answer to the witness, counsel.

MS. DeFILIPPO: I'm going to object. That is unnecessary. He can answer the question. He doesn't need to be coached.

MS. JEFFREY: Do you want her to repeat it?

THE WITNESS: Repeat the question.

(The requested portion of the record was read by the reporter at 12:31 p.m. as follows:

"Question: I'm asking you the question: Is that shield a protective impact deflection structure?")

A. I can only respond to this question by clarifying what impact we're talking about. So if you talk about FMVSS 301, it is not. If other impact, yes.
BY MR. MORGAN:
Q. Do you have any idea how that shield or -- strike the question.
Were there vehicles that were tested by Chrysler with that shield in place for fuel system integrity?
A. I assume there were.
Q. Do you know what effect that shield had on fuel system integrity when it was tested on the vehicle?
MS. JEFFREY: Object to form.
A. No, I don't know, but I know that the ZJ, the Grand Cherokee passed all of our tests, all of them, when the car was created.
BY MR. MORGAN:
Q. Yes. What test was it subjected to to evaluate fuel system integrity in an offset rear impact, Mr. Castaing?
A. I said earlier that we didn't have a standard for that.
Q. And what test was it subjected to to determine its fuel system integrity in the event of an underride impact, Mr. Castaing?

A. I said earlier that we didn't have a test for that because it was not defined.
Q. Thank you.
MR. FUSCO: What was the end of his answer, I'm sorry?
MS. JEFFREY: "Because it was not defined."
MR. FUSCO: It was not defined, okay.
THE WITNESS: As a matter of fact --
MR. FUSCO: There's no question.
MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 9
12:32 p.m.
BY MR. MORGAN:
Q. Mr. Castaing, let me show you what I've marked as Exhibit Number 9 and ask you if you've seen that before?
A. Okay. I read it.
MS. JEFFREY: Is there a question?
BY MR. MORGAN:
Q. Yeah. Have you had a chance to look at it?
A. Yes.
Q. Because I thought counsel wanted to look at it, and I wanted to make sure everybody got their chance.
A. Yeah.
Q. Okay. Do you recognize the document?

A. No.
Q. You've never seen it before?
A. No. I don't know where it was created.
Q. For the record, the document is entitled Fuel Systems and Impact by, apparently presented by a Ginny Fischbach, F-I-S-C-H-B-A-C-H, manager of truck impact. Do you know Ginny Fischbach?
A. No.
Q. Are you familiar with the term absolute versus potential failure?
A. No.
Q. I want to show you a page that is entitled Fuel System Design for Safety, and it discusses absolute versus potential test failure, and it gives four bullet points underneath there. I want to know if you're familiar with any of those concepts expressed on that page?
A. I'd like to know whether this document was there in the time when the car was created or it was produced three years ago by an engineer at Chrysler. It looks like it's a very thorough document, but it's for me to speculate what it means without knowing whether it was in effect, like the other one you presented to me, or it is a more recent one, so...
Q. I'm asking you if you're familiar with any of the

concepts described on that particular page about absolute versus potential failure and so forth?

MR. FUSCO: Object to the form.

BY MR. MORGAN:

Q. In fact, there's one in there that talks about zero leakage. You, yourself, brought it up earlier today?

A. Yes.

MR. FUSCO: Object to the form.

MS. JEFFREY: Join.

A. I'm just saying I recognize good practice engineering at Chrysler by documenting the right way of designing a fuel system. I don't know if it relate to the case we're talking today because I don't know if these were done a year ago, five years ago or twenty-five years ago when we worked together, but I recognize zero leakage, contact with unfriendly surface is unacceptable, etcetera. I recognize the same concept in this document.

BY MR. MORGAN:

Q. Okay. Let me ask you these questions then. Was the ZJ designed for zero leakage?

A. Yes.

Q. Was it designed --

A. In the FMVSS test.

Q. Was it designed with the concept in mind that contact

with unfriendly surface is unacceptable?
A. Yes.
Q. Was it designed to comply with or to prevent any -- strike the question.
Was it also designed with the concept in mind that any contact with tank accessories is unacceptable?
A. Yes. It's a common longstanding practice that fuel pipings and so on should not be rubbing on other things, so over the life of the car they don't cut. This is what it was saying.
Q. All right. So tank accessories includes what then?
A. A typical tank will have a sending unit which is like, like a piece of tubing in which there is a pump that pump the gas out of the tank, and it would be also -- the sending unit now has other accessories on top of it or next to it which are, you know, a trap for vapor, gas vapor to respect EPA and car regulations. So there are tubing going in and out of the tank.
Q. And the last one says: Pinching of fuel lines, especially with sharp edges, should be avoided.
Was the Jeep ZJ designed with that in mind as well?
A. Yes, because we don't want that. As the car age and the car goes bump, we don't want any of these lines to

be cut, just cut by the vibration or touch the edge of the thing.
Q. Well, this is an entire page that is devoted to fuel systems designed for safety, absolute versus potential test failure, designed for zero leakage. That was the test that you did for impacts, right --
A. Yeah.
Q. -- crashes. Aren't all of these items a subset of what you want to avoid -- excuse me -- in a crash?
A. Certainly you want to get zero leakage. You want to -- sorry.
Q. It's all right. Go ahead.
A. Certainly for passing a 301 test, you want to make sure that the lines are -- and fuel lines, you want to make sure the lines are not close to any sharp edge that would cut the pipe. That's why we pass the test with the ZJ and all the other cars we did.
Q. So that in the test, zero leakage, contact with unfriendly surface is unacceptable, contact with tank accessories is unacceptable, and pinching of fuel lines, especially with sharp edges, should be avoided in the test, right?
A. Yeah. What it does not say is that the, in the case of a crash at, let's say, 30 miles an hour which is at the time of the test which we were testing the car for

rear impact, the deformation of the back of the car was such that you would make sure that none of the line would be touched by that. That's why there was no leak.

Now if the impact was at much higher speed, maybe then the good design at 30 miles an hour would not have worked.

MS. JEFFREY: I don't mean to cut you off or anything, but can we think about lunch in the near future?

MR. MORGAN: Yeah, is it here?

MS. JEFFREY: I asked them to have it here in an hour, and it's been an hour.

MR. MORGAN: If it's here, I'm happy to accommodate you, I guess.

MS. JEFFREY: It's a good time.

MR. MORGAN: Yeah, we can just eat real quick.

MS. JEFFREY: Yeah. Should we try to get --

VIDEO TECHNICIAN: The time is now 12:41 and 59 seconds p.m. This marks the end of tape number three. We are off the record.

(Lunch recess taken at 12:41 p.m.)

(Back on the record at 1:37 p.m.)

VIDEO TECHNICIAN: We are back on the record. The time is 1:37 and 45 seconds p.m. This marks the beginning of tape number four.
BY MR. MORGAN:
Q. Mr. Castaing, you -- excuse me -- gave some testimony before lunch in which you were referring to framed vehicles and unitized body vehicles, and as I understood it -- excuse me -- you indicated that the Grand Cherokee was a unitized body, whereas other vehicles, I guess like the, perhaps the Durango or some other truck vehicles you said had frame rails. Do you recall that testimony?
A. Yeah.
Q. Okay. I got the implication, but I wanted to make sure that I asked the question directly. Is it your testimony that the fuel tank on the Grand Cherokee was placed behind the rear axle because it was a unitized body and not a frame vehicle?
A. Yes.
Q. Mr. Castaing, you also made a reference to a shield being provided for the fuel tank for the Grand Cherokee in your testimony earlier today; do you recall that testimony?
A. Yes.
Q. Was that shield offered as a standard item on the

vehicle?
A. I don't remember that.
Q. So you don't know one way or another, and you have no facts to give on that?
A. No.
Q. When -- excuse me -- when the Motor Vehicle Safety Standard does not evaluate a particular crash configuration, Mr. Castaing, such as offset rear impacts or rear underride impacts, what did Chrysler do to protect its customer from the risk of fuel system failure?
A. Within the guidelines like we looked at earlier of how a car is engineered for a given application, the fuel tank, as demonstrated by the test of the FMVSS 301, is secure. It's been designed to last the life of the car, to endure most crash done within the limit specified by the crash we run, call it the 301. Like I said, back then that was the test. We had no understanding of what else could be done at higher speed or anything like that. So we designed it for a given level of requirements and make sure it was working well, and it did, as a matter of fact.
Q. Well, what protection was Chrysler providing to its customers in Grand Cherokees against the event of an offset rear impact in terms of fuel system integrity?

A. As we couldn't define or the end user couldn't define the criteria to create a set of specification to define what it is we were trying to find a countermeasure against, the fuel tank -- like the spec you showed me this morning clearly defines how we design the fuel system for what we knew. We knew that it has to be protected for certain things we have observed in testing our cars within the confine of the NHTSA requirements. Beyond that, we have -- we can have anecdotal evidence of crash happening at much higher speed, different angle, different size, heavier truck versus a small sport utility, but they are not defined things you can create a rule so that the engineer can find a measure to deal with it.

Although, having said that, over time things evolve, and NHTSA and us have worked and whenever there's a consensus that we know better about a form of crash that is happening in the marketplace, then we will do something. We'll test for them.

Q. My question to you, Mr. Castaing, was limited to the subject matter of offset impacts and underrides, and I'm going to restate it, and hopefully you'll answer my question this time.

What did Chrysler do to protect its customers from the risk of a fuel system failure with

respect to the Grand Cherokee in offset and underride rear impacts?
A. Could you define for me so I can respond at what speed and what the height and define for me underride. Underride doesn't mean anything for an engineer as a place to design something against. We were doing like any other manufacturer. We were not unique in our way. We were following guidelines everybody did. It's not like we know some facts where they're in the industry.
Q. You were like all other manufacturers you just said?
A. In the process of designing a proper car that will be safe in most cases.
Q. Do you believe that the fuel system integrity provided by the Grand Cherokee was comparable to that provided by, say, the Ford Explorer?
A. You know, if -- I don't know the statistic of high speed, when it's high speed, like 50-miles-an-hour crash coming, a car bumping into you at 50-miles-an-hour crash. In the case of any other sport utility, I don't know the statistics of all that.
Q. But we've discussed several times today that 301, which you keep referring to, Well, we complied with 301, We complied with 301, We've complied with 301,

I've heard that at least a dozen times here today, but you've also said that you recognize that 301 does not provide information about offset impacts or underrides?
A. Yes.
Q. And my question to you is then: What does -- what did Chrysler do to provide protection to its customers who bought Grand Cherokees from fuel tank failure in the event of an offset or underride rear impact --
A. Well, at what --
Q. -- if anything?
A. At what speed? When you say crash, tell me the speed of the crash, and then maybe I can narrowly respond to it.
Q. I don't think that the speed is relevant to my question --
A. It is --
Q. -- and I need you to answer my question?
A. In all due respect, it is. If you talk like, for example, bumper design --
Q. Let's start at 10 miles an hour.
A. We do --
Q. Let's start at 10 miles an hour. What protection for fuel system integrity at 10 miles an hour for offset and underride did you provide, and how did you

evaluate its effectiveness since you said 301 is the only test you did and it doesn't provide any information --

MR. FUSCO: Object to the form.

MS. JEFFREY: Object --

BY MR. MORGAN:

Q. -- relevant to --

MS. JEFFREY: Don't -- until he has a question, don't answer it.

BY MR. MORGAN:

Q. -- offset or underride?

MS. JEFFREY: What's your question?

MR. MORGAN: The question is --

MS. JEFFREY: He's answered it twice, but --

MR. MORGAN: No, he hasn't, counsel. He hasn't. He's avoiding it.

MS. JEFFREY: Speechify some more.

BY MR. MORGAN:

Q. What did Chrysler do to protect its customers from the risk of a fuel system failure in a Grand Cherokee in offset and underride impacts, we're starting at 10 miles an hour?

A. Okay. Now we know the speed. How do you declare -- what angle, what vehicle, what does that mean? We know, for example, an angle test we do on bumpers because we have a specification with the industry. We know that bumpers should not be damaged for a given impact coming either from the back or for the side for the industry. So for this one we do know that thing.

In another document that you gave me early today from -- I don't remember where it is -- there's a number of other standard besides 301 that are involved in the design of a fuel system. So I don't want that or your question to imply that we have only one test we pass, but I agree with you, they are at the time, the science of designing automobile and the database we got from the Government on what we needed to test against was not enough for us to understand exactly what we needed to do.

Q. So is it your testimony then that it was the Government's job to design the safe vehicle and not Chrysler?

MR. FUSCO: Object to form.

BY MR. MORGAN:

Q. We at Chrysler get to sit around and wait for the Government to come to us; is that your testimony?

MR. FUSCO: Object to the form.

MS. JEFFREY: Object to form.

A. No. I think I said earlier that we work with the

Government, we share data. We have people like Mr. Boltz I tell you before that keep in touch with the Government. We have a database of accident that we look at, and we go see the car when we have an accident to understand them. We don't let things go. Over time things change, new technology, like airbags changed things and other ones, and so then I come back to the thing --

BY MR. MORGAN:

Q. What innovations have been made in fuel system design since the introduction of the Jeep ZJ?

MS. JEFFREY: I'll object to foundation.

BY MR. MORGAN:

Q. If any, if you know of?

A. You keep referring to the fuel design question.

Q. That's right. That's because a woman burned up in a vehicle in this case. This isn't a case about airbags. It's not a case about bumpers. It's a case about a woman --

MS. JEFFREY: Stop badgering the witness, please.

BY MR. MORGAN:

Q. -- who got burned up in a car crash, and I'd like you to define -- to please answer the questions that are being posed to you.

So the question pending right now is: What innovations in fuel system design are you aware of that have occurred since the introduction of the Jeep ZJ?

MS. JEFFREY: I'm going to object to the preparatory language that you used there. You're badgering the witness, and I'd ask you to stop.

You can read the question back.

THE WITNESS: I understand the question.

MS. JEFFREY: Okay.

A. A fuel system is a system where you have how the tank is located, how it's attached, how it's protected, how the material you use, for example, talk about an innovation that came along was the replacement of steel tank by molded composite tank, better understanding of material that permit to control the crush of the back of the car when things -- the industry made significant progress in the '90s about through computer modeling understanding the crash, how the car crush under an impact, all of that to protect what is in there, which is a fuel tank and piping and all of that going in it, too. Yes, continuous improvement everywhere.

BY MR. MORGAN:

Q. Well, I've heard about composite tanks. Do you mean a

plastic tank?
A. Yeah.
Q. And you said something about use of computer --
A. Modeling.
Q. -- modeling to predict or to control crush?
A. No, to understand it better. So if we understand it better, we can do it better.
Q. Anything else?
A. Yeah, I think that the standard I think have been raised that we're working with NHTSA. I think that cars are tested now at 35 miles an hour more than --
No?
MS. JEFFREY: No, don't -- I'm not testifying.
A. I think there was an ongoing discussion. Offset crash testing came from Europe and was adopted progressively by the U.S. and a better understanding of offset crash happen in the industry. So when we learn something, we've done something about it.
BY MR. MORGAN:
Q. Is it your testimony that offset rear crash testing was not feasible when the Grand Cherokee was being developed?
A. That's not what I said. Crush tests -- offset crash happen, we know that.

Q. And offset crash testing was feasible when the ZJ was being developed; is that true?
A. Well, again, feasible in the sense you can -- you can, you know, crash something into something else but like you were arguing with me earlier, do we know that, for example, 401 is representative. So you can crash something. If it's not related to a given accident or real-life accident, it doesn't mean anything.
Q. Is that a yes, such testing was feasible?
A. I just said what I said.
Q. What about underride testing; was rear underride testing feasible?
A. At what speed?
Q. Any speed you wish to choose, Mr. Castaing.
A. So can you describe a characteristic, against a pickup truck, against a sports car, against what?
Q. I'm asking you --
A. I don't know.
Q. -- was underride testing feasible?
A. You keep asking me question to implying in the question that it's something we should have done and we have not done, and I keep saying to you that the people who engineered the ZJ at the time did the best they had with all their energy and what was known in the industry.

Q. Mr. Castaing, I'll ask it again: Was underride rear impact testing feasible when the ZJ was being developed?

MR. FUSCO: Objection, asked and answered. Object to the form.

MS. DeFILIPPO: He never answered it.

MR. MORGAN: With all due respect, it hasn't been answered.

MR. FUSCO: He answered it twice.

A. Can you define me what you call underride again since you don't seem -- if you give me a technical definition or you ask your expert witness to give me that.

BY MR. MORGAN:

Q. Well, if you want to look at the earlier Exhibit 8, I think, the exhibit authored in 1978, some 10 years or so before the ZJ was -- Exhibit 7, I'm sorry.

A. Yeah, I understand. I understand what underride means in the sense that there is a car that's lower than another one bump into the first one. I understand that.

Q. So the question is: Was underride testing feasible during the time period that the ZJ was being developed?

A. In principal, probably.

MS. JEFFREY: For the record, that was Exhibit 7.
MR. MORGAN: Yes, thank you.
MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 10
1:53 p.m.
BY MR. MORGAN:
Q. Mr. Castaing, let me show you a document that I've marked as Exhibit 10, and I believe it is relative to the year 19 -- excuse me -- 1985 as it indicates, but let me ask you if you've seen that before?
MS. JEFFREY: He says it's '85.
A. Okay, I see it.
BY MR. MORGAN:
Q. Okay. Do you recognize the document?
A. No.
Q. You've never seen anything like this before?
A. No, specifically this one, no.
Q. This one, no. Have you seen documents like this before?
A. I've seen piles of blue book at Chrysler called specs, and if that was one part of it, I know where they were.
Q. Okay. Did you ever read those blue books called specs?

A. No.
Q. No?
A. No.
Q. Now would -- excuse me -- we talked about the issue of a truck in your view is something that has a frame, and the Grand Cherokee had a unitized body. What about cars, you know, like the Dodge Lancer or the Colt, Dodge Aries, were those unitized bodies or were those framed?
A. Yep.
Q. Those were unitized bodies?
A. Yes.
Q. Okay. If you would look at Page 22 of this Exhibit Number 10, it says: On all models except the rear-wheel drive Diplomat, the fuel tank is located under the car beneath the rear seat where it's forward of the rear suspension and between the body rails -- body side rails, I should say, giving it protection in the event the car is subjected to rear or side impacts.
Do you see that there?
A. Yes.
Q. Were you familiar with that concept with respect to unitized bodies apparently at Dodge in '85?
A. I don't know specifically about them because it was

before my time but front-wheel drive cars have much room underneath the rear seats because the engine and the transmission are in the front. In a four-by-four vehicle like the Jeep, we have a prop shaft and an axle in the back and the room where typically you put this fuel tank in a passenger car is taken by the axle. That's why the ZJ were designed with location of the tank where it is.

Q. What was the drive configuration?

MS. DeFILIPPO: Can interrupt you for a minute. The ZJ -- could you read back the last answer.

(The requested portion of the record was read by the reporter at 1:56 p.m. as follows:

"Answer: I don't know specifically about them because it was before my time but front-wheel drive cars have much room underneath the rear seats because the engine and the transmission are in the front. In a four-by-four vehicle like the Jeep, we have a prop shaft and an axle in the back and the room where typically you put this fuel tank in a passenger car is taken by the axle. That's why the ZJ were designed with location of the tank where it is.")

BY MR. MORGAN:

Q. What was the -- are you familiar with the configuration of the Ford Explorer; was that a framed vehicle or was it a unitized body or don't you know?

A. A frame.

Q. Well, was it front-wheel drive or rear-wheel drive?

A. Rear-wheel drive, but it was not a unitized body.

MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 11
1:57 p.m.

BY MR. MORGAN:

Q. Let me ask you to take a look at Exhibit Number 11, which is another Engineering, Dodge Engineering I guess document from 1990.

A. So I've seen it.

Q. Are you familiar with this document?

A. Same response that previously, this is part of one of these blue book with spec inside, but I've never seen it, per se.

Q. Okay. Well, it's a document describing Dodge Engineering. You would have been in 1990 the chief engineer, right, you were the head of Engineering, correct?

A. Yes, yes.
Q. So the folks in your organization would have put this together; is that right?
A. Well, in a corporation like Chrysler who have been in business for at the time 50 years or more, 60 years, this book was -- you know, the beginning of this process was started in the early days and every year when something or every so many years when things will get better, it will be documented and placed in this collection of spec, standard they call them, Chrysler standard, and I remember it, it was a library of books like this wall. So I knew where they were, and whenever there was an issue, I would ask to understand what the issue was during the process of program we were doing and so on, and we refer to maybe a standard. So I knew what it is, but I have to admit I've not read them all.
Q. If you would take a look, I think it's -- you're going to find it as Page 33, although it's not paginated. Go to Page 32 and then turn one more page. You've got it open there. Great.
The document says: 1990 Dodge Engineering safety features.
Do you see that there?
A. Yes.

Q. What does it say with respect to the safety features provided with respect to fuel tank location?
A. It says: Fuel Tank Location. The fuel tank is located under the car beneath the rear seat - where it's forward of the rear suspension and between the body side rails - giving it protection in event the car is subjected to rear or side impacts. The lightweight aluminum filler tool is sealed by --
COURT REPORTER: Is sealed --
BY MR. MORGAN:
Q. Everybody that reads something always gets revved up and goes a little faster, and it gets to be troublesome for the court reporter.
A. The lightweight aluminum filler tube is sealed by screw-type filler cap. A five-inch nylon tether on all models attaches the filler cap to the car - so you don't leave the cap behind at fuel stops.
Q. Were you aware that those were -- excuse me -- important safety features provided by Dodge to its customers in 1990?
MR. FUSCO: Object to the form.
MS. JEFFREY: Join.
A. This is not an advertising document. It's a state of the art at Chrysler amongst engineers of what they think is the right design for passenger car coming

from an era where all the passenger cars were rear-wheel drive and frame and moving into place where they were front-wheel drive lightweight unibody, and when they found out that one of the advantage of unibody cars, they could put the fuel tank, you know, underneath the rear seat, and it's true, it bring an advantage compared to previous design on other cars, but that doesn't mean that that same, that like, for example, the ZJ fuel tank is less safe than this car were.

BY MR. MORGAN:

Q. Did you do any testing to determine whether or not the fuel system integrity of the ZJ was comparable to that provided to the customers buying cars from Dodge?

MR. FUSCO: Object to the form.

A. No. We pass the same -- it's the same test.

BY MR. MORGAN:

Q. Was your answer no, you didn't?

A. Let me finish. We passed the same test with our ZJ that we passed on all the passenger cars, so the results were the same.

Q. Is that 301 test?

A. 301 and all the other ones listed in the other document you showed me.

Q. That's the same test that the Pinto passed, too, isn't it?

MS. JEFFREY: Object to form.

A. The what?

BY MR. MORGAN:

Q. It's the same test that the Pinto passed, isn't it?

A. I don't know about the Pinto.

Q. Let me ask you this question, Mr. Castaing. During the period of time that you were the head engineer for Chrysler Corporation, did Chrysler ever have to recall any vehicles?

A. Did we do what?

Q. Recall vehicles. Were there ever any safety recalls?

A. Yeah, like most of us in the industry on occasion, we have a mishap and we recall the vehicles.

Q. And I assume that every one of those vehicles that was recalled passed every Motor Vehicle Safety Standard test it was subjected to and yet it was recalled, wasn't it?

A. Most recalls are not due to design defects. They are due to manufacturing defect which is engineers release for production a car with a certain requirement for the suppliers to bring bolts and nuts and all of that to a certain spec, and we make, let's say, 800 cars a day in an assembly plant. We have 4,000 packs of things coming into the assembly plant on two shifts,

and sometimes there is a mishap, and this is 95% of the recalls are due to manufacturing defect. So whether we passed the test, even we tested the car that year for a given standard, it may well be that we will have a recall because of a manufacturing defect.
Q. So we can agree that each and every time Chrysler recalled vehicles as defective, those vehicles had, in fact, passed the tests required by Motor Vehicle Safety Standards; is that a true statement?
MS. JEFFREY: Object to form. He testified about --
A. I will say we have never released for production in my time vehicles that were not passing well in all the requirement of the Government, never. If we were not to pass one, we will hold production until we pass the test, all of the tests, and there's no exception to that rule. Never.
BY MR. MORGAN:
Q. And that's, I assume, for the protection of your customers; is that right?
A. The standard of the company to satisfy, first of all, our obligation to the Government and make sure that our cars were safe.
Q. It wasn't for the safety of your customers?
A. Yeah.

MS. JEFFREY: He just said to make sure our cars are safe.

A. What I just said.

MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 12
2:06 p.m.

BY MR. MORGAN:

Q. Mr. Castaing, I'm going to show you what I've marked as Exhibit 12 -- excuse me -- and do you recognize the first page of this document?

A. No.

Q. You don't recognize this as related to the 1996 Jeep Grand Cherokee?

A. Yes, I read that.

Q. Okay. And you were still the Vice President, I think probably Executive Vice President in charge of Engineering at the time the 1996 Jeep Grand Cherokee was introduced, were you not?

A. Yes.

Q. What does this document depict, Mr. Castaing?

A. I'm not sure. There is no title. It's not an engineering design, so I don't know. Do you know where it came from?

Q. Are there any frame rails or body side rails or anything you can discern from this document?

A. Yeah, could be a manufacturing design but it's not a -- because in the unibody -- I don't know, I don't know what it is, so...
Q. Now in connection with the fuel system design for the 1996 Jeep Grand Cherokee, did Chrysler poke a hole in the frame rail so that it could run the fuel filler through that hole?
A. I don't know.
Q. You don't know?
A. No.
Q. Well, take a look at the next page. Do you recognize this photograph as a photograph of a tank for a Jeep Grand Cherokee with a hole punched through the frame rail through which the fuel filler passes?
A. I see that.
Q. Was that a feature of the design that you approved for sale to the public?
A. I, I -- when you say approved, I didn't review this design and didn't approve myself. There are people like maybe someone you know of that were in charge of this project and whenever an issue raised to me that needed my attention to that. So no, I don't recognize this was the feature of this car or another car.
Q. Well, Mr. Castaing, you testified earlier you went through engineering program reviews with your

engineers at Jeep/Truck. Would you not have sat in on the meetings when the fuel system was discussed and where they're going to put it and how they're going to attach it and how we're going to accomplish the fuel filler and we're going to punch a hole through the frame rail and run the filler through there?

A. If you read my response this morning when you asked the question of this program review, I explained that we were there to make sure that things were going along, and we were only reviewing issues that were not going along by exception. So if this was going right, the design was going well, the testing was going well, the manufacturing of it went well, I would not know about it.

Q. Mr. Castaing, can you identify any other offering by Chrysler Corporation that ran the fuel filler lines through the frame rail?

A. No, I don't know.

Q. If you would, please, Mr. Castaing, I'd like you to hold that photograph up so that the -- it can be placed on the video, if you would, and would you point out the tank, the frame rail and the fuel filler so that the jury can see?

MR. FUSCO: Objection.

MS. JEFFREY: Yeah, I don't want him doing

that. If you want to point it out, that's fine.
BY MR. MORGAN:
Q. Mr. Castaing, can't you point it out? You're the engineer. You went to Napoleon school.
MS. JEFFREY: He's not required to do that.
A. It is to respond to your question. Not to be your clown, okay?
MR. FUSCO: It is not in evidence.
A. So please do it.
MS. JEFFREY: I'm going to direct him not to do it.
MR. MORGAN: Fine. I'll do it. If Mr. Castaing doesn't want to do it, I'll do it.
MS. JEFFREY: I'm telling him not to.
MR. FUSCO: You can do whatever you want. We object to it, though.
BY MR. MORGAN:
Q. Let me ask you this, Mr. Castaing: Is this the fuel tank, what I'm pointing to right now?
A. Looks like it, yep.
Q. Is this the frame rail, what I'm pointing to right now?
A. Yes.
Q. Is this the fuel filler, what I'm pointing to right now?

A. I can't say.
Q. You don't know that that's the fuel filler?
A. No. I don't understand the drawings. I've never seen that earlier, and like I said -- I don't know. You asked me if I recognize. I don't.
Q. Is it your testimony that, just so that we're clear, the first page of Exhibit 12, which is a drawing, you don't understand as the former Executive Vice President in charge of Engineering at Chrysler Corporation; do I have that right?
A. No, you don't have it right. It's what I said I don't recognize it because typically a frame rail are not designed outside the rest of the body. So this I said is maybe a design coming from manufacturing or maybe from service to fix them when the car is after an accident. That's why I said I didn't recognize that.
Q. I am going to ask the court reporter to read back your answer to the preceding question, not the question you just answered but the one before that.
(The requested portion of the record was read by the reporter at 2:12 p.m. as follows:
"Question: You don't know that that's the fuel filler?
"Answer: No. I don't understand the

drawings. I've never seen that earlier, and like I said -- I don't know. You asked me if I recognize. I don't.")

BY MR. MORGAN:

Q. You did testify you don't understand the drawings, didn't you, Mr. Castaing?

A. I said understand these drawings because it's not an engineering drawing that I will be seeing. I understand what frame rail because I've been in the industry for a long time.

Q. Well, let me -- okay. Let me ask you this, Mr. Castaing. You testified very proudly earlier this morning that your wife drove your children around in a Jeep Grand Cherokee. Did you not know that the fuel filler pipe passed through the frame rail and went into the tank while your wife was driving it around with your children in it?

MS. JEFFREY: I'm objecting to the form and you're badgering him again. It's ridiculous.

You can answer if you can.

A. Myself and all the Chrysler employees whose family are driving the car they designed don't know necessarily of every detail of every car, but we know as a group we did a great job at Chrysler to build safe cars that have been successful in the marketplace, and I was so absolutely concerned about any other cars that my family rode in every day. So what can I say? Whether I remember where the fuel filler was or not, has no relevance, makes no difference.

BY MR. MORGAN:

Q. Mr. Castaing, looking back at Exhibit 12, if you'd look at the first page of it, the bottom depiction there entitled Side View at the rear there, doesn't that depict the hole that was punched through the frame rail that we see in the next page in the photograph?

A. I don't know from this. Maybe it is. Maybe it is not.

Q. Well, again, if we take a look at this photograph here, if I can get that up on the screen, take a look at it?

MR. FUSCO: Objection to show and tell.

BY MR. MORGAN:

Q. Mr. Castaing, would you agree with me that in the event of a crash, that if, in fact, this is the fuel filler here, fuel filler line -- oh, did I drop my microphone? Sorry.

MR. FUSCO: Can I just see that? Okay. Thank you.

BY MR. MORGAN:

Q. I'm sorry, Mr. Castaing, if we can -- if I can ask you to assume that this is the fuel filler line here as depicted in the photograph passing through the frame rail, that in the event of a rear impact, particularly an offset underride impact, that that fuel filler line will have contact with unfriendly surfaces?

MS. JEFFREY: Object to form and foundation. He's not here as an accident reconstructionist.

A. Understand I'm not going to speculate on that. I'm not sure. I don't recognize exactly what I'm being shown, so I don't know.

BY MR. MORGAN:

Q. Okay. Take a look at the last page of the document. See if this jogs your memory at all.

Do you recognize this?

MR. FUSCO: Is there a page number we're referring to or just the last page?

MR. MORGAN: The last page.

MS. JEFFREY: I think it's the fourth page.

MR. MORGAN: The fourth page.

MR. FUSCO: I just want the record to be clear about this.

MR. MORGAN: Sure.

A. I don't recognize the place. I can see that it is showing again the Grand Cherokee frame rail system not welded to the body, which is not the current, the way typically they're shown. It's slitting in certain ways to give the impression that the Cherokee also has a frame, an independent frame, which it does not have one. So people may be misled by that drawing.

MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 13
2:17 p.m.

BY MR. MORGAN:

Q. Let me show you Exhibit 13, Mr. Castaing.

A. Yes.

Q. Do you recognize the white vehicle in the photograph as a Jeep Grand Cherokee, the rear portion of a Jeep Grand Cherokee?

A. Yes.

Q. Does this photograph depict a bumper mismatch?

A. I don't know what mismatch means.

Q. The bumpers don't match, the bumper on the front of the vehicle --

A. Recognize they are not the same height.

Q. Yes, and this is a configuration that would be conducive in the event of a rear impact to an underride, wouldn't it?

MS. JEFFREY: Object to form and

foundation.
A. I don't know because -- not necessarily because the bumper is slightly lower than the other one that the rest of the structure of the car, which is above the bumper and behind, will let that happen.
BY MR. MORGAN:
Q. So you can't tell from looking at this that this type of configuration between a passenger car that has a bumper that's lower than the bumper on the Grand Cherokee is or can be conducive to an underride in the event of a rear impact?
MS. JEFFREY: Objection to form and foundation.
A. I can explain why what I just said is because the bumper, itself, is not very strong and is there to collapse because it's the law in this country to absorb energy. The structure at the front of the car is above the bumper. So if you look at this, this shot you are showing me, this structure is here. So the structure is in line with the bumper, with the Jeep bumper. So I don't think that this mean anything to me. We don't know.
BY MR. MORGAN:
Q. How does the frame rail as you described it in Exhibit 12 match up with the level of bumper depicted

on the Grand Cherokee in Exhibit 13?
MS. JEFFREY: Object to form.
A. I don't know. I don't understand the question.
BY MR. MORGAN:
Q. Well, take a look at Exhibit 12.
A. I can see the bumper there.
Q. Yeah. And you can take a look at the photograph below it if it will help you and the one below that, too, if it will help you even more.
It looks to me like that frame rail with the hole punched through it has a crossmember that's exactly the height of the bumper. Am I wrong on that?
A. On the Jeep, yes. I was talking -- I was showing you the car. The car, itself, structure is here, not there. I've designed front-wheel drive. I know where they are. So the structure in the car is the same height as the structure in this vehicle.
Q. Let me make sure that I understand.
A. You are making the case that this looks like this car could snuck underneath the Grand Cherokee in the crash.
Q. My question I thought to you was: Doesn't the bumper on the Grand Cherokee appear to have behind it a crossmember directly connected to the frame rail of the Grand Cherokee?

A. Yeah, yeah. Frame rail of the Grand Cherokee is here. The frame rail of this car is not here. It's here. So they're the same height.

Q. Let me make sure that I understand. You're telling me that on Exhibit 13, the photograph --

A. Yeah.

Q. -- what is that photograph of the front of; what is that vehicle?

A. Any front-wheel drive.

Q. Okay. You're telling me that the frame rail of that vehicle is in line with the headlights; do I have that right?

A. Yeah, more or less. It's not underneath the bumper. I'm not suggesting --

MS. JEFFREY: No, just --

MR. MORGAN: All right. I think we need to take a break for a couple minutes, Mr. Castaing. We have to get a couple things together here, and then we'll be right with you.

VIDEO TECHNICIAN: The time now is 2:22 and 25 seconds p.m. This marks the end of tape four. We are off the record.

(Recess taken at 2:22 p.m.)

(Back on the written record only at 2:39 p.m.)

MR. FUSCO: Chris Fusco. I understand that Mr. --

MS. DeFILIPPO: Let him put on the record that he's leaving.

MR. MORGAN: Yeah. It's about 2:30 or so and I have discussed this with Ms. DeFilippo. It's actually 2:40 by my watch. I have a prior engagement that I have to attend to, and she is going to complete the questioning of Mr. Castaing. And I guess Mr. Sacco has a few questions as well.

MR. FUSCO: Before Ms. DeFilippo begins her questioning and before Mr. Morgan leaves, I've raised objections prior to today about what I perceive to be irregularities in the proceedings, including the taking of the deposition by an attorney not allowed to practice in the State of New Jersey. I also have objected to Mr. Sheridan's presence here. Based on those objections, I'm asking that all documents be preserved, including the note pads that Mr. Sheridan was writing on, the note pads Mr. Morgan was writing on and all the documents that Mr. Sheridan brought here be preserved because I will be making appropriate discovery demands or subpoenas as to those documents.

MS. DeFILIPPO: I'd just like to state for the record that it should be that all those documents have been already supplied to you by me, and if there's any -- I am not aware of any document that I didn't supply in discovery already or that would not be supplied by the discovery end date. So you don't have to worry about that.

MR. FUSCO: Well, if there's documents in this room that have not been produced in discovery, Mr. Sheridan has them right now, I'd like them produced.

MS. DeFILIPPO: I don't know of any. I don't think there were any, and I will go through them and make sure. As you know, there's volumes of discovery at this juncture, and the discovery end date has not passed, and you are certainly entitled to have copies of every one of those documents that have been marked. However --

MR. FUSCO: I'm also referring to his box with the red top, the files in front of him, the note pad he's been writing on today.

MS. DeFILIPPO: I am not agreeing to that, nor do I think you have any right to that. If the documents are going to be produced in discovery, we will do that. And if they are not going to be produced, we will not do that.

MR. FUSCO: I don't expect you to agree.

What I'm saying today is I want them all preserved.

MS. DeFILIPPO: Certainly they'll be preserved.

MR. MORGAN: Are you suggesting that you can get access to notes that I made in preparation for the deposition?

MS. DeFILIPPO: No, no.

MR. FUSCO: I am suggesting that I believe that this whole process has been irregular, and because of that, I have to do some research about what we can get and how this all interplays, and once I've done that research, I might have to make appropriate motions and discovery demands. Until that time, because I've just learned about this today, I'm asking that all the documents that I referred to be preserved.

MR. MORGAN: Well, as I understand it, you were advised several weeks ago that Michigan counsel may --

MS. DeFILIPPO: True.

MR. MORGAN: -- conduct a portion of the examination. If you didn't read your correspondence, that's not my problem, but if you're suggesting that I have to maintain copies of my notes that I made for my personal preparation, that you have some access to those, preserve yours, too, then.

MR. FUSCO: Okay.

MS. DeFILIPPO: Yeah, exactly.

MR. FUSCO: That's fine but I am an attorney of record in this case and you're not.

MS. DeFILIPPO: But he was an attorney --

MR. MORGAN: There is something called attorney work product, my thoughts and impressions, counsel.

MS. DeFILIPPO: He was an attorney whose information was supplied to you prior to this dep for many reasons and went out in a letter by my office, and I will have my paralegal have that letter faxed here tomorrow so that you can reread it because obviously you didn't read it because you didn't respond to it and you didn't object to Mr. Morgan being here, and I didn't even know whether it would be Mr. Morgan or another counsel who was local at the time when I wrote that letter. So he was not identified by name but he was identified as local counsel.

MR. FUSCO: Even if I did see it and it exists, and I'm not taking issue about that, nothing in that letter cures the irregularities that have occurred here today.

MS. DeFILIPPO: Not with respect to Mr. Morgan. Mr. Morgan has no reason to save his notes. More importantly, if I wrote notes to him and he wrote notes to me and they're the attorney's concept or work product or what we discussed with each other attorney to attorney for Plaintiffs, you never get any right to them. There will be never be a case that will allow that or a judge in the whole world, and I am not going to ask him to preserve them. That's up to him what he wants to do because that is just improper but if you're going to --

MR. FUSCO: Angel, if something has been --

MS. DeFILIPPO: I'm sorry, but no note of any attorney is evidence, no note.

MR. FUSCO: If he was an attorney of record in this case.

MS. DeFILIPPO: He was an attorney that you were advised about would be here to ask questions, and as a matter of fact, I am here with him to make sure that there is no issue going on, and I was lucky to be able to get here, and you never objected to his presence or his participation, and you were advised fully in advance.

MR. FUSCO: I don't agree with that but okay.

MS. DeFILIPPO: I'll produce that letter tomorrow.

MR. FUSCO: But it doesn't cure any of my objections. Obviously the Court will have to get involved. That's it.

MS. DeFILIPPO: Well then, save your own notes because if notes of attorneys are going to be exposed in this case, then I want everybody's notes who's sitting at this table, including attorney for the witness, everybody's notes, including your co-counsel who is helping you.

MR. FUSCO: I think that's impossible.

MS. DeFILIPPO: Well, if you think you get attorneys' notes, I want everybody's notes.

MR. FUSCO: I think I need to research the issue about an attorney who is not counsel of record in this case.

MS. DeFILIPPO: You had every right to object. That's why I wrote the letter.

MR. FUSCO: I've objected.

MS. DeFILIPPO: But you never objected. We're here in Michigan. Everybody's here. We could barely get everybody together to get this done, and we did everything we could to comply with the Court's scheduling orders, the discovery end dates, the fact

that we've been trying to get witnesses and trying to get on some kind of a schedule, and my letter to you was a courtesy letter. If you had any objection, this dep would have been adjourned. I wouldn't be flying here. Mr. Sacco wouldn't be flying here.
Mr. Sheridan wouldn't be here. Mr. Morgan wouldn't have taken his time. You wouldn't be here. You had every right to object before we flew out here. That's ridiculous, counsel. You're making an issue of nothing. Let's continue.

MR. FUSCO: You go at your own peril.

MS. DeFILIPPO: Your peril.

MR. FUSCO: I don't think so.

MS. DeFILIPPO: Your peril because if you do anything in this case, we're going to ask for costs.

MR. FUSCO: Okay.

(Mr. Morgan left the deposition room.)

(Back on the video record at 2:47 p.m.)

VIDEO TECHNICIAN: We are back on the record. The time is now 2:47 p.m. This marks the beginning of tape number five.

MS. JEFFREY: It's my understanding that there are going to be three attorneys for the Plaintiff who will be deposing this witness. I'll let that go forward, but I'm not going to have much tolerance if there's going to be a lot of repetition.

EXAMINATION

BY MS. DeFILIPPO:

Q. Mr. Castaing, my name is Angel DeFilippo. I represent the Plaintiffs. I did introduce myself prior to sitting here now in this chair. I'm going to continue the questioning as Mr. Morgan had to leave for another appointment.

Did you have any involvement at all during your time with Chrysler with respect to crash testing of the Jeep ZJ?

A. Direct involvement in what sense?

Q. Any involvement, any involvement at all with respect to the crash tests that were performed on the Jeep ZJ?

MR. FUSCO: I can't hear you.

BY MS. DeFILIPPO:

Q. Whether it be for development or production or any other thing, did you have any involvement?

A. I don't remember having specific involvement with this program, although I have to say that my recollection is that this is a program that went very well, and maybe because I had said earlier the added time, the delay caused by the merger with Chrysler gave us engineers more time to finish what we had started to

do. I don't remember any issue and so particularly on the side of the crash test. So I was not involved, no.
Q. Did you ever attend any of the crash tests?
A. No.
Q. Did you ever read any of the crash test results for the ZJ, either in its development stages or in production?
A. No. Like I said earlier, I think that if there was no issues, which mean that the work done by the engineers, their calculation, their good engineering practice was driving the program forward then, and when we were testing the prototype, they were passing or if they were not passing, it was for something we understood by the time we got to the skin prototype and production, we were passing, there was no reason for me to go see what we call routine tests. They are tests that are important that we pass, and they remain routine unless we have an issue, so...
Q. Okay. But, Mr. Castaing, please listen to my question. All I want to know is as you sit here today, do you recall ever reading any crash testing at any time for the Jeep ZJ?
A. No.
Q. How about the WJ?

A. No.
Q. Now prior to coming here for this deposition today, did you review any documentation at all with your counsel or without your counsel?
A. No.
Q. Did you review any notes, any correspondence, anything written?
A. No.
Q. Did you review any films, any DVDs, any CDs, anything that was video, audio, or any other thing?
A. Zero, no.
Q. So you came here today without having reviewed any matter, whatsoever?
A. No.
Q. And when was the last time that you appeared for a deposition or trial testimony or in any litigation involving Jeeps at all?
A. I was deposed several times in my life because it's part of the privilege of the job I had. I'm pretty sure I was deposed on various -- on some of our vehicles, maybe Jeeps. Maybe I was deposed on -- I don't remember but I'm sure I was deposed on Jeep cases.
Q. Do you remember when the last time was? And you can approximate, you don't have to be exact. I just don't

want you to guess.
A. Three, four years ago maybe.
Q. Do you remember any of the matters, the names of any of the matters that you were deposed about or gave testimony about?
A. I think the last one was -- no, I don't remember. They are not a pleasant souvenir to be frank with you.
Q. Mr. Castaing, did you ever author any test requests for rear test crashing for the Jeep ZJ?
A. Did I what?
Q. Did you ever author any of the testing requests for crash testing of the ZJ?
A. What?
MS. JEFFREY: Author, write.
BY MS. DeFILIPPO:
Q. Author, write, design the test --
A. No.
Q. -- specifications or anything of that nature with respect to the Jeep ZJ crash tests?
A. No.
Q. What is the title of the person at Chrysler who would have authored the Jeep testing?
A. I said earlier in the previous interrogation, I was -- these tests are documented by the Government or like we look at previous test, and we don't deviate from

this test. So there's no authorship. We make sure that the test is there for us to comply there, the people involved in it. In this case I said earlier that the final testing of this car were all done by new people at Chrysler, new colleagues at Chrysler coming, testing the AMC products, if you wish.

Q. Okay. But that's not my question.

A. Maybe I don't understand it.

Q. My question is: What is the title or was the title of the person at Chrysler who would author or write the test requests for the Jeep prior to the testing being done?

A. There are no such requests. When we put together a plan for a program, you have this master timing table that defined everything that when we have to freeze the design, when we have to freeze the design of the interior, when we'll have to add the first skin design of the shell and so on, and then along the way at some point we build mule maybe because it was a new car, and mule may be pre-prototype, and then in the schedule it will say for such a day, we will go send the prototype to the proving ground or to the lab for testing, and then later on there will be -- we say we will earmark, let's say, three or four Jeep ZJ skin prototype to be tested for various FMVSS standards.

So there was no such thing as people have to ask for it. The people were building them. They were on schedule to go to the proving ground. The proving ground knew they were coming, and then there they were tested, and the proving ground would issue a report on the test.

Q. Was there such a thing in Chrysler, a position known as the vehicle development crash test engineer?

A. No.

Q. Would you agree with the statement that if in a crash test a vehicle fails once, it cannot be considered an anomaly but the flaw must be designed out of that vehicle?

MR. FUSCO: Object to the form.

MS. JEFFREY: Join.

A. I don't agree with that statement exactly.

BY MS. DeFILIPPO:

Q. Okay. Tell me why.

A. Like I said, first of all, when you talk about crash tests, there are dozen and dozen of them. Some are done on a sled. Some are done with real cars. Some are done with half cars. And so it's not that the crash test is one thing. It's a multitude of tests. Some are done in the lab and some are done at the proving ground. Some are done with mules which are imperfect cars and then some are done with skin prototype which are more close to the, becoming closer to the real thing and then finally the pre-production unit we call pilot which looks like the unit.

So in the case of a mule crash, we could accept a crash because we wanted to find out where we were. So there was not necessarily a flaw. It was just a bench, you know, a mark along the way. Then on the skin prototype, we will look at the crash test and make sure that it was either something we needed to do something about or something we knew that it was, maybe the welding of some part of the car was not, was not perfect, and we said maybe that's where it came from and so on. So we were not always redesigning the car. It was maybe making sure that we understood why we were not passing or passing.

Q. Okay. And let's be more specific then. With respect to the pilot test, cars that are just about ready to go to production and you're doing crash testing, would you agree with the statement that if the test fails once, you don't consider it an anomaly but the flaw must be designed out?

MR. FUSCO: Object to the form.

A. I don't agree with the thing design out. I agree that we should do something but it may be a manufacturing issue.

BY MS. DeFILIPPO:

Q. Okay.

A. So it's not design out. We have to understand what it is and fix it.

Q. Okay.

A. And I said earlier, if it is not fixed, we will not start production.

Q. You will not start production?

A. No.

Q. And what about if it's a production vehicle -- I know you said earlier that there are times when you do random testing, correct --

A. Correct.

Q. -- of vehicles already in production, so if a crash test fails, would you agree that in that situation, you would also have to find the flaw and correct it?

A. If it -- if it will happen, and it never happened in my lifetime that we failed, maybe -- I don't remember. I don't remember that we had that. Maybe -- I don't know. I don't think that we failed a crash test, per se, but if we were to do that and find out that there have been a number of cars that year that were not welded right, for example, we would -- we would try to quarantine the cars at our lab, catch the ones that

are already on their way to the dealership and then, you know, fix, fix what's wrong with the car on the assembly line and restart production with a fix, retest the car to make sure that it was okay and then decide what to do for the cars that were already built and maybe recall them.
Q. Now Robert Sinclair, was he the head of minivan and passenger cars when you were the head of Jeep and Truck?
A. Yeah.
Q. And then did you -- did he leave while you were still with Chrysler, Robert Sinclair?
A. He leaves at the time I took over the entire Engineering organization for Chrysler.
Q. Did you take his place?
A. Yeah, whatever he has underneath him became part of what I was doing.
Q. Was there such a thing at Chrysler when you were there as the vehicle safety committee?
A. There was not such a thing as a formal safety committee.
Q. Was there an informal safety committee?
A. At some point we had one.
Q. And what was that; did it have a title?
A. No. It's kind of a story that had been debated that

was at the time at the beginning of the new minivan, your witness here decided to start calling me things to discuss the merits of --
Q. You're talking about Mr. Sheridan?
A. Yeah.
Q. He --
A. But this was never an official committee, and we listened to what he have to say and took action on things we thought were useful and dismissed the other ones.
Q. Okay. So are you saying that there was never a vehicle safety committee that dealt with engineering regulations and all matters related to safety and recalls?
A. No. I said earlier that we had -- I don't remember. It was not called a safety committee but we have -- when we talk about Mr. Dale Dawkins working for Mr. Ron Boltz, they were in charge of making sure that -- they were the keeper. They were looking at us engineers saying, We are counting on you to meet all this regulation, and by the way, this one has changed, and so on. They were also facing the EPA and other Government agencies. And maybe we had a committee that was meeting -- I remember we had a committee to talk about recalls when we had one, whether they were

related to safety or not safety. I don't remember about a safety committee.
Q. Safety was really important at one point in time, though, to Chrysler, correct?
A. The what?
Q. Safety issues?
A. Always.
Q. There was a lot of campaigning about how safety became primary to Chrysler around the time when you were there in the '80s and the early '90s and up through the '90s, correct?
A. No --
MS. JEFFREY: I'm just going to object to the form of the word "campaigning".
BY MS. DeFILIPPO:
Q. When I say campaigning, I mean there was advertising about Chrysler having safe cars, correct?
A. Well, I would say I don't know of any corporation that does not, you know, try to make the point that their car are better engineered than others, and Volvo, for example, was one that was famous for that. We all delve to the same issue that at some point a new, a new technology would come along like airbags, and it's true that in the days of Mr. Iacocca, just in the time when the ZJ was coming out, there was a drive to be

the first one to have more airbags in our cars than the competition, and that created like a buzz about safety is important. But for engineers, safety is always important, whether it's advertised or not.
Q. And didn't Mr. Iacocca also indicate that, and I'm going to quote, the real issue for the '90s is not quality but safety, yours, to the public?
A. I don't know if he said that. I would not suggest that he would say something like that because it's not either/or.
MS. DeFILIPPO: Let me just show you what I'm referring to and see if this refreshes your recollection. I'm going to mark this the next marking which would be Castaing 14.
MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 14
3:02 p.m.
BY MS. DeFILIPPO:
Q. It's a two-page document. Just take a look at it.
A. Yeah, this is --
MS. JEFFREY: Wait for a question.
BY MS. DeFILIPPO:
Q. So having looked at this document now, Mr. Castaing, and I did read a portion of it that was highlighted on Page 2, it's a document which was -- has a signature

of Mr. Iacocca, correct?
A. Yeah.
Q. And it was a document that went into the media for the public to read, correct?
A. It looks like it, yeah.
Q. And he does say in this document: The real issue for the '90s is not quality but safety. Yours.
Correct, he did say that?
A. He said that but early on he said we were the first one to have airbags and he was -- this was at the time where the company was trying to recover from another near death threat, and our Chairman, Lee Iacocca, was trying to find ways to get people interested in what we were doing and being the first one to have many cars equipped with many airbags was a way of doing that.
Q. Right.
A. And this is about the airbag strategy.
Q. I understand that but he made a statement that I read to you. I'm just asking you if he made the statement that I read to you: The real issue for the '90s is not quality but safety. Yours.
Isn't that a statement in this document?
A. Yeah, but --
Q. But that's my question.

MS. JEFFREY: It's okay. Do you want that to be part of this?

MS. DeFILIPPO: Are you the keeper of all the --

MS. JEFFREY: Yeah, I'll take that one, too.

MS. DeFILIPPO: And I'll mark the next document, Castaing 15.

MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 15
3:04 p.m.

BY MS. DeFILIPPO:

Q. This is another document also signed by Mr. Iacocca, I'll just show it to you briefly, correct?

A. Yeah.

Q. And will you just read the heading on the article for the record?

A. The what?

Q. The heading, the title.

MS. JEFFREY: This part here.

A. Safety should be our first priority. The auto industry has dragged its feet long enough.

BY MS. DeFILIPPO:

Q. Okay. And that's also signed by Mr. Iacocca as an advertisement to go to the media for the public to

read, correct?
A. I assume so but I don't have any -- I don't know where it went.
Q. Now did the 1996 ZJ have a designed protection system for the fuel tank?
MR. FUSCO: Objection.
A. A what?
BY MS. DeFILIPPO:
Q. A designed protection system for the fuel tank?
MR. FUSCO: Objection, duplicative.
A. Well, the same question that was asked me several times today already is that every car manufacturer, regardless of where the fuel tank of their cars is located, makes sure the tank is protected in case of a specific condition which are dictated in our case by testing. So we would pass that test.
BY MS. DeFILIPPO:
Q. Okay. All I want to know is was there a -- do you understand that terminology designed protection --
A. No, I don't.
Q. You don't understand it?
A. No.
Q. Okay.
A. Because it could mean anything to me.
Q. Okay. That's fine. I just needed to know that. So

would you agree with the following statement, the fuel tank system in the Jeep ZJ relies on sound engineering execution rather than simply choosing a location?

MR. FUSCO: Objection.

BY MS. DeFILIPPO:

Q. Would you agree with that?

A. No.

Q. Why not?

A. Because that's not the world we come -- engineers work in. You are designing an automobile with a given architecture, and your job is to make sure that in this particular architecture, you pass a series of hurdle to make the car sellable and satisfactory for the customer and safe for all of us to drive.

Q. And do you understand the terminology sound engineering execution?

MR. FUSCO: Objection, form.

BY MS. DeFILIPPO:

Q. Does that mean anything to you as an engineer who was at Chrysler and who took a big part in the ZJ?

MS. JEFFREY: Object to form.

MR. FUSCO: Objection, duplicative.

A. I'm not sure I understand myself. We execute cars for them to succeed to have high quality, to meet all the standards and expectation of standards. This is good

engineering at its best. There's no sound or not sound. This is engineering, what it's supposed to do. There's nobody in town that will tell you that some days we do sound engineering and some other days we don't do sound engineering.
BY MS. DeFILIPPO:
Q. So you have never used the term sound engineering execution when you related to the people that worked for you while you were at Chrysler, correct?
A. I'm sure we used the term, the term sound in the rationale for something, we'll use it. If someone were to say does that sound right to you or this solution sound the right one for the job, yes, we use sound.
Q. Well, I don't mean "sound" in that context.
A. Okay.
Q. I understand that it's not a phrase that you would say to your people, I want you to use sound engineering execution in doing, in locating our fuel tank?
A. No, that's not -- that's not comprehensible for engineers.
Q. Okay. It's not an engineering terminology, correct?
MS. JEFFREY: Answer out loud. Say yes.
BY MS. DeFILIPPO:
Q. You have to say yes.

A. Yes.

MS. JEFFREY: Or no, it is not.

BY MS. DeFILIPPO:

Q. Can you just define for me when you say someone is an engineer what you mean by that term "engineer"?

A. Yeah, well, an Engineering group, since that's what I was leading --

Q. No, the engineer, itself. If you're looking for someone who is an engineer, what are you looking for in terms of qualification?

A. To have a degree.

Q. An engineering degree, correct?

A. Yes.

Q. Okay. And is a lab technician an engineer?

A. Some are. Some have -- you know, in the lab you have some, some tasks which are more complex than others. Some are engineers. Some have other technical diploma.

Q. So at Chrysler, there could be a lab technician who does not have an engineering degree; is that fair?

A. Could be, yeah.

Q. And is a quality engineer at Chrysler or during the time -- and you understand that I'm asking you about questions during the time when you were there, correct?

A. Uh-huh, yeah.
Q. Was a quality engineer a title that existed at Chrysler when you were there?
A. Yeah, it existed at AMC and at Chrysler.
Q. And does a quality engineer have an engineering degree?
A. They do.
Q. Okay. And does a contact engineer, is that an engineering person?
A. A what?
Q. A contact engineer, was there such a thing at Chrysler?
A. A con --
Q. A contact engineer.
A. I don't know what a contact engineer is.
Q. You never worked with any contact engineers?
A. No.
Q. Okay. Was there a title at Chrysler when you were there known as an investigative engineer and specialist?
A. No.
Q. So you don't even know what that means?
A. I understand the words.
Q. No, but I mean, you didn't work with any --
A. We were expecting all of our engineers to be

investigative in their mind.
Q. In their mind. Is there some title or was there some title between 1987 and the time that you were there called a senior product analysis engineer?
A. Probably, yeah, maybe.
Q. Did you ever work with a senior product analysis engineer that you can recall?
A. I'm not sure what that means. We have people doing analysis all the time. Whether they were doing FMEAs, you know, failure mode analysis, we had many of them modeling of, you know, as technology evolved. Yeah, I'm sure we had -- I had contact with some of them.
Q. Did they have any part in designing the car?
A. Do what?
Q. Do they design the cars or the Jeeps?
A. FMEAs --
Q. No, the senior product analysis engineers, do they design Jeeps?
A. I'm not too sure. I don't recognize who they are. Typically if they're doing analysis, they are not designing. They are the counterweight.
Q. Do they do testing of the Jeeps?
A. If they do analysis, they don't do testing.
Q. They don't do testing, so they don't do testing at all?

A. No.
Q. All right.
A. As far as I remember.
Q. As of June of 1998, is it fair to say that you did nothing for Chrysler; is that what your testimony was? I wasn't sure I understood. You said that you were there until 2000, but then you also said something about 1998.
A. Yeah. The original deal, I wanted to retire for personal reason, and they wanted me to stay a little bit. So I retired from my job at running International, and the Chairman say, I want you to stick around, so we'll give you a package so you can stick around and I'll call you.
Within a month-and-a-half of the first year, the merger with the Germans is announced, and clearly our Chairman is not in need anymore. So it was not that I was not there to help him. It's that the company has taken a different course. It was merging with Daimler, and I was not -- I was not useful to him.
Q. So let me ask you it this way. So from 1998 in June to the present you have not worked or done anything at Chrysler; is that a fair statement?
A. Yeah, from January, 1998.

Q. January, okay.
A. Yeah.
No. Actually, I should say I represented them at a Congress someplace in Austria.
Q. But you didn't have hands-on work in the company as an engineer?
A. No, no, no.
Q. Okay. Now how often during the time you were at Chrysler did you or anyone in Engineering have any contact with persons at NHTSA?
A. How often?
Q. How often?
A. With NHTSA?
Q. Yes.
A. The team working for Ron Boltz and Mr. Boltz, himself, may have been talking to them several times a month.
Q. Would you say it was every week?
A. I don't know.
Q. Would that be fair to say?
A. I don't know.
Q. So but it's at least once a month or twice a month?
A. I don't know. They were, maybe depending of the calendar of issues, whether NHTSA was looking for reaction to a proposed rulemaking, whether we were having a recall or something. So it's hard to say how

many times it was.
Q. I think you said earlier that you wanted your Chrysler cars to be safe because company employees, including your own wife, drove them, correct?
A. With our daughters inside, yeah.
Q. With your daughters inside?
MR. FUSCO: Objection, duplicative.
BY MS. DeFILIPPO:
Q. I notice not your sons, right? Okay.
Do you know whether or not you, your wife drove a ZJ without a trailer hitch, a skid plate, a reinforcing bracket or a blocker bracket?
A. Well, she was getting a new -- because of my position, we were leasing or we were having access to a car that was new every year, and I'm sure some years we had a hitch package, some year we didn't. We had -- I'm sure we had that. She probably used like ten of them or nine of them.
Q. But as you sit here today, do you have a recollection that one of those Jeeps at any time that your family drove was a Jeep without a skid plate, a trailer hitch, a reinforcing bracket or a blocker bracket?
MR. FUSCO: Objection to form.
A. I don't know.
BY MS. DeFILIPPO:

Q. You don't know?
A. No.
Q. Do you know what I mean when I say reinforcing bracket?
A. No, I don't understand that today.
MS. DeFILIPPO: We supplied photographs to Chrysler's attorney to identify a bracket that came to our attention I'm going to show you.
MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 16
3:17 p.m.
A. Realize that the car was designed in 1986/'7, and I probably will not remember the bracket.
BY MS. DeFILIPPO:
Q. Okay. Well --
A. Any brackets.
Q. Okay. Were you -- you were in the company in 1996 and '7, though, correct; you were the head of Engineering then?
A. Yeah, but I was not looking underneath the cars every day.
Q. Okay. Well, let me show you what we've marked Exhibit 16. They are three photographs.
A. No, I don't recognize this bracket.
Q. Okay. I'm going to represent to you that we sent

these photographs to your counsel for Chrysler in a discovery request, and we asked about testing of this particular bracket, and we were advised of a part Number 520591288AA, and it was a bracket mentioned in a deposition of a Mr. Judson Estes. Do you know who he is?

A. Who?

Q. Mr. Estes, E-S-T-E-S?

A. No.

Q. And he indicated that this bracket was used to reinforce the ZJ in 1997 and was the subject of testing back at that time. Are you saying you don't know anything about this bracket at all?

A. I said earlier that Chrysler had 7000 engineers, all of them doing brackets in some ways. So I couldn't see every one of them. If it was an important issue at the time, I would have been advised of it and maybe I will remember today, but I'm pretty sure I don't remember that.

Q. So do you remember any instance where the Jeep ZJ that was going into production for '97 was having trouble with passing the 301 crash test and the bracket was used to pass and comply with the test, testing?

A. In '97, I was traveling the world selling cars for International. I was not anymore an engineer at the

time.
Q. You were not head of Engineering in '97?
A. No. I said -- no. '97 was the last year I was with Chrysler active, and I was in charge of Chrysler International.
Q. How about in '96?
A. I was -- I was promoted to that in November of '96. That's why I left Engineering.
Q. Well, I think the testing was done in 1995. Do you recall anything about testing which --
A. No.
Q. -- involved a special bracket which went on the left side --
A. No.
Q. -- of the rear to reinforce the rear --
A. No.
Q. -- in connection with passage of the 301 test; you don't know anything about that?
A. No.
Q. Who would know?
A. I don't know.
Q. Well, what would be the title of the person at Chrysler who would, who should know about this bracket?
MR. FUSCO: Object to form.

A. Like I said, There are 7,000 engineers. In every car there is 40,000 parts going into them. One is a bracket. We have a car line with two dozen product lines. It's hard for me to tell who was in charge of knowing this bracket among this 12 times 40,000 parts.

MS. JEFFREY: I will represent to you that one of the engineers that we're going to be producing was involved in the testing of the decision to use that bracket.

BY MS. DeFILIPPO:

Q. I don't want to just know who was involved in the testing. I want to know who was responsible for -- where did the buck stop, in other words; who was responsible for ensuring that the bracket did what it was supposed to do and that this bracket would come into play in the first place. I don't mean by name. By title.

A. It would be someone that was in charge of that and did a good job at doing that.

Q. Well, would it be the crash test engineer? Would it be a product planning person? I just want to know by title if you're having a problem passing 301 and you're going to install something new, a new part like this bracket, who would be in charge of determining that, designing it, and certifying that this is okay

for our cars and this is how we're going to sell them?
A. Well, the Jeep were designed by the team of engineers, probably 6, 7, 800 of them.
Q. I'm not talking about the design of the Jeep, itself. I'm being very specific now.
A. Yeah, and I'm saying one of them or two of them or three of them, some manager, some senior engineer was involved in doing the right thing and did make that happen.
Q. Well, who --
MS. JEFFREY: If you know.
BY MS. DeFILIPPO:
Q. Who by title would be the person --
A. I don't know.
Q. -- that would have to sign off that everybody below them did the right thing on a new part like this.
A. Engineers sign off on their job when it's done. So what I can say I don't know if there's specifically a specific engineer that was involved on this particular one. I don't know.
Q. So it could be any random engineer who worked for Chrysler --
MS. JEFFREY: Objection --
BY MS. DeFILIPPO:
Q. -- is that what you're saying?

MS. JEFFREY: No. Object to form. What he's saying is he doesn't know.

MS. DeFILIPPO: Well, he didn't say he didn't know. He didn't say I don't know. But that's different. He did not say he doesn't know.

A. But you should not speculate that a random person did something on safety at Chrysler because this implies that we were doing things randomly on safety and we were not. We have a very thorough organization. We are good engineers. When we were -- like I said earlier in the deposition, if there was an issue with passing 301 or any other test before it went in production, people will deal with it responsibly, make sure it was done, and there would be check and balance between the proving ground testing, the engineer designing and some management leadership about that. So that's what I can say.

BY MS. DeFILIPPO:

Q. Okay. And I'm saying that if I can identify a specific new part that was placed in the vehicle to comply with 301 testing because without the part, the vehicle was not going to comply, all I want to know is can you tell me if I can give you the part, tell you what the part is and tell you that we're dealing with something very specific, can you tell me the title of

the person who would have the responsibility to make sure that this was, in fact, the right part and it did the right job?
A. Today as I'm sitting, I don't know.
Q. Yes, that's all I want to know. And you wouldn't be able to say the title of the person? That's all I want to know.
A. I don't even know.
Q. Okay. That's fine.
Did you ever see -- I know you've been presented with a document. May I look at the documents?
MS. JEFFREY: And you might want to put your Number 15 back here, the bracket photo.
MS. DeFILIPPO: Okay. Sorry.
BY MS. DeFILIPPO:
Q. In 7, Exhibit 7, which was the Sinclair/Baker memo, I know you were asked a lot of questions about it, but the one question you weren't asked is, there is a reference in Page 2 of that about Chrysler investigating fuel tank relocation and an investigation whether to relocate the fuel tank is underway. You read that part, right?
A. And I responded already that I didn't find any --
Q. I didn't ask the question yet. Hold on.

A. Okay.
Q. All I want to know is did you read that part about the investigation, right, as contained in this document?
A. I read it today.
Q. Yes, okay, and my question to you --
A. I don't remember ever --
Q. Wait a minute. My question to you is simply: Was there ever an investigation with a written document stemming from the investigation that you're aware of?
A. No.
Q. If there was an investigation, would you expect that there would be some type of document evidencing that investigation?
A. Typically, yes.
Q. Okay. And if I wanted that --
A. What year is that?
MS. JEFFREY: '78.
BY MS. DeFILIPPO:
Q. This year is '78. And if I wanted to find the document which corresponds to the investigation which was indicated as being underway in 1978, where would I be able to find that document, if you know?
MR. FUSCO: Wait a minute. Object to the form.
MS. JEFFREY: Hold on. And your question

implies that there was an investigation.

MS. DeFILIPPO: It says it's underway.

MS. JEFFREY: Your question implies that there was a report.

MS. DeFILIPPO: No, no. He said typically yes. And I said, if I wanted to find one, where would I go if there was one?

MS. JEFFREY: If you can answer about this 25-year-old document.

BY MS. DeFILIPPO:

Q. Yes, if you can answer.

A. It was '80 before I joined the group, so I don't know.

MS. DeFILIPPO: Okay. So I'm going to make a request now of counsel for Chrysler because I know that we have some ongoing things that we are doing discovery wise of the document or any, anything which evidences the investigation that was underway in '78 regarding relocation of the fuel tank.

MS. JEFFREY: You have served a discovery request, and we've responded to it. We did look and we found nothing. It was sent to you by Rob Cook about two weeks ago.

MS. DeFILIPPO: Rob Cook?

MS. JEFFREY: Yeah. You served a Request For Production. I'll bring it tomorrow.

MS. DeFILIPPO: Yeah, would you please.

MS. JEFFREY: Actually, I think I might have it.

MS. DeFILIPPO: I don't remember Rob Cook but you can give it to me tomorrow. Just note my request and we can deal with it tomorrow.

MS. JEFFREY: I've got it right here. You can have this copy.

Ms. DeFILIPPO: Well, if you're going to represent --

MS. JEFFREY: It's the -- I ripped off the cover sheet. It's signed by Rob Cook.

MS. DeFILIPPO: You know what, if you're going to represent you've done an investigation and you can't find anything on that --

MS. JEFFREY: I did produce a more complete copy of the memo which had the three drawings attached to it. We did find --

MS. DeFILIPPO: I never received that, but if you want to make me a copy of it, that's fine.

MS. JEFFREY: Okay.

MS. DeFILIPPO: We don't need it now. You can make it --

MS. JEFFREY: I'll get it to you tomorrow. I served it on May 27th, two weeks ago.

BY MS. DeFILIPPO:
Q. Mr. Castaing, would you agree with the fact, with the statement that the manufacturer of a motor vehicle is in a better position to know about safety engineering and design than the Government?
MR. FUSCO: Object to the form.
MS. JEFFREY: Join.
A. Not necessarily.
BY MS. DeFILIPPO:
Q. And has there been, to your knowledge while you were with the company, any vehicle-to-vehicle testing done by Chrysler --
MR. FUSCO: Object to the form.
BY MS. DeFILIPPO:
Q. -- regarding the Jeep, whether it be the ZJ, the WJ or the WK?
MR. FUSCO: Object to the form.
A. I don't think -- I don't know. I don't remember. If we did, I don't remember.
BY MS. DeFILIPPO:
Q. Would you agree with the statement that at the time that you were with Chrysler and active as head of Engineering, that safety had no budget?
A. No, I don't agree with that.
Q. Would you agree that the Engineering safety committee

did not have a concern about a budget, that it was --
that they could do whatever was right for the customer
and that they were the company conscience?

MR. FUSCO: Object to the form.

A. I don't know about this committee you're talking
about. I said earlier that there was never a formal
committee like that. I have to say that when you say
safety and no budget, it means that in a wonder world,
we can say, we can stuff cars with all kind of things
that we know protect people, small and big and so on,
and at the end, the car has no budget, which means
it's too expensive and that nobody can buy them. So
at the end of the day, a car manufacturer cannot think
this way because he has to produce cars that, let's
say, under-privileged people can afford to buy, not
only millionaire, and that that's the way you run the
business. So at the given point of time of the car
company, you maximize what you can do within the
legislation and the car and the technology that is at
your disposal to offer the best you can for 99 percent
of the people buying your cars.

BY MS. DeFILIPPO:

Q. Mr. Castaing, do you recall giving testimony back in
January of '06 in a case involving a lawsuit in which
you indicated that safety, the safety committee or

people who were working on safety aspects of engineering had no budget, that it was not important; what was really important was what was right for the customer?

MS. JEFFREY: I'd ask that he be allowed to review that testimony in context. I mean, he can answer if he remembers it or not.

A. I don't even understand what you said.

MR. FUSCO: Object to the use of that testimony.

MS. DeFILIPPO: Well, you can object.

A. I don't understand what you said, so can you repeat it?

BY MS. DeFILIPPO:

Q. Do you remember indicating in a prior deposition something -- a statement to the effect that safety-related decisions were without financial restraints of any type?

MR. FUSCO: Object to the form. I also want to put on the record, counsel is reviewing notes that are not testimony. So I think it's patently unfair what's going on here, but all I can do is object to the form.

MS. JEFFREY: And I agree.

MR. SACCO: It's not your witness, counsel.

MS. DeFILIPPO: You're objecting to the form and that's fine.

MR. FUSCO: That's all I did.

BY MS. DeFILIPPO:

Q. Do you want me to read it again?

A. Yeah. I don't understand.

Q. A statement to the effect that safety-related decisions are without financial restraints of any type?

A. Well, this may be taken out of context. It was as often in previous deposition, there was always some lawyer telling me that you work for this big greedy company and you were obviously the boss of Engineering, so you must set a limit on the ability of the engineers to do the right thing because we're costing money, and I responded to that every time that if we were to find there was an issue requiring redesign for more money to fix a nonissue, obviously we would not spare any money, and this is different from the question you've raised earlier, which is so broad that safety had no budget, which is not -- there's nothing -- so I guess to that --

Q. Mr. Castaing, let me go a little further. Was there such a thing as a vehicle safety and emissions regulation committee?

A. Yeah.
Q. So that's a committee that had a title, correct, it was formal, it was not informal, correct, vehicle safety and emissions regulation committee?
A. Yes.
Q. And it had an acronym, right?
A. Maybe.
Q. You had a nickname; you called it something else, right?
A. I don't remember.
Q. Okay. And when you were -- you were a member of that committee, correct?
A. Yes.
Q. And you, in that committee, you reviewed all matters regarding safety, emissions, recalls, and you made judgments about what's right for consumers; is that accurate?
A. Yeah, this committee was primarily --
Q. Did you answer yes?
A. No, no. I cannot say --
Q. I just asked you if I was accurate.
A. No, no, no, no.
Q. I'm not accurate?
A. No.
Q. Okay. We'll go on. So --

MR. FUSCO: Are you not allowing him to finish his answer?

BY MS. DeFILIPPO:

Q. Did that committee --

No. My question required a yes or no answer.

MS. JEFFREY: You don't have to answer yes or no but go on. No. Go ahead.

BY MS. DeFILIPPO:

Q. I want to give you one instruction for the rest of, I don't have much more, but for the rest of what I'm going to ask you, if I ask you a question that can be answered yes or no, please do that, and if you don't think you can answer it yes or no, then just tell me you can't answer it yes or no --

A. Okay.

Q. -- and then I'll let you explain, okay?

A. The last question I could not respond by yes or no.

Q. Okay, that's fine. As a member of the vehicle safety and emissions regulation committee, were there considerations as to cost that you discussed in that committee?

A. I cannot respond yes or no unless I explain why.

Q. Okay.

A. Can I?

MS. JEFFREY: Let her -- let her ask the questions.
BY MS. DeFILIPPO:
Q. And within that committee, were there safety-related decisions that were made without financial restraints of any type?
MS. JEFFREY: Object to form.
BY MS. DeFILIPPO:
Q. Can you answer that yes or no?
A. No, there wasn't -- we cannot do decision without understanding the cost to anybody. At the end the customers pay for what we put in their cars, so...
Q. Now was there such a thing called DealerCONNECT?
A. What?
Q. Was there such a thing called DealerCONNECT that you were aware of?
A. I remember the name. I don't know what it is anymore.
Q. Was DealerCONNECT a system, a computer system that you had with all of your dealers?
A. Yeah. I was not connected to that myself.
Q. Okay. You testified this morning about some, in your capacity as head engineer in whatever position you were holding because you were moving up the ranks, correct --
A. Yes.

Q. -- that you did have some interaction with the dealers?
A. Yes.
Q. Okay. Can you just tell me whether or not you or how often you interacted with the dealers, with your dealers?
A. It was not regular. It could be the dealers would be invited or selected dealers would be invited to headquarters to see the car the following year and, you know, the preview, and I would be there to also talk to them. I attended other gathering of dealers, like convention in Las Vegas where on occasion we, not regularly, but the dealers would get together to talk about the future of their business with us. I didn't have a day-to-day relationship with dealers.
Q. Did Chrysler have an ongoing relationship with dealers through the computer system?
MR. FUSCO: Object to the form.
A. I don't know.
BY MS. DeFILIPPO:
Q. Did you ever have any discussions with dealers about any problems with the vehicles?
A. Yeah, when we had -- there was people that we were talking to, not to me personally, but there were people in the company and especially in the service

side of the company, we're talking to them every day about what, if they were having issues and what they were and was it something that needed to be corrected by the company in some way or the other.
Q. Did you ever discuss lawsuits with your dealers?
MR. FUSCO: Object to the form.
A. No.
MS. JEFFREY: By "you" you mean him, right?
BY MS. DeFILIPPO:
Q. You or anyone in your office in your capacity as engineer?
A. No, I cannot say.
MR. FUSCO: I'll object to the form.
A. I don't know.
BY MS. DeFILIPPO:
Q. I know you answered that you don't know whether every ZJ had a skid plate covering the tank. Was that your testimony earlier?
A. Yes.
Q. You just don't know?
A. I don't know.
Q. You don't know if it was in the design when it went into production; is that fair to say?
A. Which skid plate?
Q. Skid plate for the gas tank, fuel tank?

A. What year?
Q. Any year, when it was first -- when it was first
designed and went out as a -- it went out as a 1993 ZJ
Jeep, that was the first year it went to the public,
correct?
A. '92.
Q. Well, it went out in '92 but it was a '93 vehicle; is
that fair to say?
MS. JEFFREY: Yeah.
A. Maybe.
BY MS. DeFILIPPO:
Q. Okay. So when that '93 vehicle left Chrysler, can you
say whether or not it was designed with a skid plate
covering the gas tank?
MR. FUSCO: Object to the form.
A. I said I didn't know whether it was an option or it
was in every car.
BY MS. DeFILIPPO:
Q. I understand that. So you don't know whether it was
designed as standard?
A. No, I don't know.
Q. Okay. And can you tell me whether or not all the ZJs
that went out in '93 and into the future had skid
plates standard for their transfer cases?
A. I don't know.

Q. By the way, what was the powertrain warranty back in 1993?
A. I don't remember.
Q. Now Mr. -- I only have a few -- I only have a few questions. I'll be finished shortly.
Do you know about a firm called Exponent?
A. What?
Q. Exponent, a failure analysis associates called Exponent?
A. No.
Q. You never heard of them?
A. No.
Q. Do you agree with the statement that the fuel tank location from the ZJ to the WJ was changed to allow relocation of the spare tire from the rear interior of the ZJ to below the rear floor pan in the WJ?
MR. FUSCO: Object to the form.
A. You're asking me if I knew?
BY MS. DeFILIPPO:
Q. Yeah, did you know.
A. I don't know the detail. I know we changed location of the spare wheel.
Q. And do you agree that the reason was to allow relocation of the spare tire from the rear interior of the ZJ to below the rear floor pan in the WJ?

MR. FUSCO: Object to the form.
A. It's what I just said. It was done at that time.
BY MS. DeFILIPPO:
Q. And that was the reason you understand it was done?
A. The relocation of the spare tire?
Q. The relocation -- the fuel tank location was changed?
A. I don't know about that.
MR. FUSCO: I don't understand the question.
MS. JEFFREY: And I object to form.
BY MS. DeFILIPPO:
Q. Okay.
A. I know that customers complained that they wanted a different location for the spare wheel in the original ZJ, so when the YJ was created --
Q. The WJ?
A. -- the WJ was created, the spare wheel was relocated.
Q. And was the location of the fuel tank changed, also, in that vehicle?
A. I don't know the detail.
Q. Do you know Daniel Crimmins?
A. No.
Q. Do you know a title senior specialist in product analysis department; do you know that title?
A. Who?

Q. Senior specialist in product analysis department?
A. You asked me the question earlier. I said I knew the title but I don't remember anything about them.
Q. And -- okay. Do you know a man named Lawrence Brooks?
A. No, I don't remember.
Q. Mr. Castaing, Susan Kline had a ZJ Jeep Grand Cherokee. She did not have a tow package. She did not have --
A. She didn't have what?
Q. She did not have a tow package on the car. She did not have a reinforcing bracket described by Mr. Estes, the pictures of which we showed you which have been marked --
MS. JEFFREY: Exhibit 15.
BY MS. DeFILIPPO:
Q. I believe it was 15 -- 16. 16. She did not have a skid plate covering her tank. She did not have a blocker bracket. Can you tell me what, if anything, protected her fuel tank in a rear-end collision with underride from a passenger vehicle?
MR. FUSCO: Object to the form.
MS. JEFFREY: I object to form and foundation. He's not a reconstructionist. He hasn't looked at this accident.
BY MS. DeFILIPPO:

Q. From a design standpoint. I'm not asking you from a reconstruction standpoint at all.
A. What you're avoiding telling me is at what speed the accident happened to this lady.
Q. And with speed, with speed.
A. The speed of this, whatever, I don't know the activity --
Q. Let me stop you so we understand the question.
Whatever speed. What I'm saying to you is this --
MR. FUSCO: This is exactly the same question.
BY MS. DeFILIPPO:
Q. Susan Kline had a ZJ Jeep Grand Cherokee without a tow package, without a reinforcing bracket described by Mr. Estes as Exhibit 16 here, without a skid plate, and without a blocker bracket. Can you tell me what, if anything, protected her tank, her fuel tank, in a rear-end collision with underride with a passenger vehicle?
MS. JEFFREY: Object to form and foundation.
MR. FUSCO: Object to the form.
A. I have to assume, and I don't know enough, but I have to assume that the configuration of this car is one

that was tested by Chrysler and passed tests that are supposed to pass like I talked earlier at length. So the car passed the test with or without such-and-such accessories, and so that's the way it was released for production.

Now, if a car crashed into this lady, poor lady, at an excessive speed that was beyond what we tested for, nobody can explain what happened --

BY MS. DeFILIPPO:

Q. Okay.

A. -- with or without a tow package, with or without a skid plate, with or without everything.

Q. Mr. Castaing, what protected her tank if it came in contact with another -- if the tank, itself, was contacted by another vehicle --

MR. FUSCO: Object to the form.

BY MS. DeFILIPPO:

Q. -- was there any structure of the Jeep ZJ, in Susan's Jeep ZJ which protected her fuel tank?

A. Okay. I said earlier, I'm going to repeat one more time, that the Jeep ZJ fuel tank was protected by the body around it. It was not -- let me finish, let me finish -- it was not protected by the tow package. It was not protected by the skid plate underneath. It was protected from stones underneath but not for the

301 crash that we talked about or a rear crash. So the question that you ask doesn't make sense to me.

Q. Okay. Let me make more sense to you. Susan's car had nothing around her tank. She did not have any skid plate, and she didn't have any plate-plate, any, anything. She had a plastic tank. Are we agreed on that? Assume that, assume those facts.

MS. JEFFREY: No. I'm going to object to the form because he just stated that there was an entire structure surrounding the tank.

MS. DeFILIPPO: I'm going to get to that. I'm getting to that. I haven't -- you didn't let me finish the question because I was going to incorporate that into my question.

MR. FUSCO: The problem is you used the word "nothing". You said "nothing".

BY MS. DeFILIPPO:

Q. All right. Mr. Castaing, Susan's tank, itself, was visible from the rear. Someone standing behind the car looking at it, you could see the gas tank, itself.

A. Uh-huh.

Q. A part of that tank was visible below the bumper, and I want to know specifically as you sit here today what structure of the vehicle specifically, you say body, I want to know specifically a part, a structure that protected that portion of the tank that hung below the bumper and was visible to the eye from another car hitting it?

A. I'm going to repeat what I've already said one more time that --

Q. No, I don't want you to repeat what you said. I want the specific part. I'm asking you specifically. You gave me a general answer, and you said the body. I want to know specifically what part of the body protected the part I described to you that is visible and hangs below the bumper and can be impacted directly by another vehicle?

A. The accessories that you talked about have nothing to do with protecting the tank, whether there's --

Q. Fine, fine.

A. Let me finish. The tow package does not protect the tank. The skid plate underneath only protect the tank from stones from the ground.

Q. Fine.

A. So the car as you describe it was not the car with nothing. You have the car with all the structure, the back structure around it to protect the tank, and this configuration was tested at the proving ground by --

Q. What back structure?

A. There were --

Q. What structure protected the portion of the tank that
hung below the bumper that I could see when I look at
the back of that car and that another car can impact
directly; what protected that?
A. How do you know that the car impacted that directly?
Q. I'm not saying --
A. See, if you say something, if you want to be
technical, tell me how do you know that the car
impacted underneath the car what you said?
Q. I'm asking you to tell me what part of the car
protected that portion of the tank that I could see?
There are still Jeep ZJs on the road, correct?
A. All right.
Q. All right. I've seen the Jeep ZJs, Mr. Castaing, and
so have you and so has everyone here, and I think my
question was really clear, and I'm asking for an
answer to be specific as to what portion of the car
you refer to when you said the tank was protected?
A. On both side of the tank there are the rails. In the
back there is a crossmember and then that fits to the
structure that could avoid a collapse of the back of
the car in the crash.
Q. It's a crossmember, is that what you're saying?
A. Yeah, there is a crossmember behind the bumper system
that, a cross bar there in the back of it, of the car,

and it's all part of the real structure with the opening of the liftgate and a part of a strong structure, and the tank is hang underneath that and protected in case of rear impact from that.

Now I have to understand and I'm sorry to hear that there was an accident where a car may have find a way to hit that in certain way that was beyond what we tested for, which has happened in the industry. If a car is designed to pass a test at 30 miles an hour and the car is hitting, hitting this particular car at 40 or 50, it may not work. We understand that.

MS. DeFILIPPO: If you just give me a minute, I think we can take a break now.

MS. JEFFREY: Okay.

VIDEO TECHNICIAN: The time is now 3:52 and 26 seconds p.m. We are off the record.

(Recess taken at 3:52 p.m.)

(Back on the record at 4:06 p.m.)

VIDEO TECHNICIAN: We are back on the record. The time is 4:07 p.m. This marks the beginning of tape number six.

MR. SACCO: I believe counsel has something he wishes to place on the record?

MR. FUSCO: No.

MR. SACCO: Okay.

EXAMINATION

BY MR. SACCO:

Q. Mr. Castaing, I'm going to try to be short and sweet, and most of my questions are going to be directed to you in your capacity as either Vice President or Executive Vice President, understood?

A. Yes.

Q. During what period of time were you the Vice President of Engineering?

A. At AMC I was in charge of Engineering from 1984 through 1987. Then I was Executive Vice President of -- no, sorry -- I became the Vice President for Jeep and Truck Engineering at Chrysler for two years until, a year-and-a-half, until from 1987 to the end of 1988. Then I was Vice President of Vehicle Engineering at Chrysler from 1988 until 1986 -- 1996, and then in 1996 I became for one year Executive Vice President of Engineering, and then I left Engineering to become head of, President of Chrysler International.

Q. Okay. That was effective January 1st, 1998; is that correct?

A. No. That's when I left.

Q. Yeah, that's when you left?

A. Yeah.

Q. That's when you became --
A. Advisor to the Chairman.
Q. Okay. So you were an Executive Vice President through the end of 1996; is that accurate?
A. Of Vehicle Engineering, yes.
Q. Okay. In your capacity as Executive Vice President, how many people answered directly to you?
A. Between -- I don't remember the exact number but let's say 10.
Q. And what were their titles; what was their rank?
A. There were we'll say probably two types of them. One there were, at the time we were organized by project group called platform group. So there was general manager of large car or general manager of Jeep or general manager of pickup trucks or small cars or minivan. There were some of them.
Q. Okay. Let's focus on the Jeep division, okay. The people that answered directly to you would have been general managers of the Jeep division?
A. Of Jeep, the Jeep platform group. Division was maybe the entity selling Jeep outside, but inside the company was called platform group.
Q. Okay. What's the difference between the entity and a platform group?
A. Well, the one I understand is the one I was -- people

reporting to me.
Q. That would have been the platform group?
A. Right, right.
Q. Okay. And were those people responsible for the development, design, and manufacturing of the vehicle?
A. They were responsible primarily to make sure that the design and development of the vehicle would happen in conjunction with procurement, manufacturing and so on. So they were -- the car business has kind of two cycles, the first one is -- or three cycles. One is when you create cars. Then another one is to make them. And the third one is sell them. We were doing the first part which involved manufacturing before the assembly line just started moving.
Q. Okay. But once a vehicle was ready for an assembly line, you had nothing to do with it from that phase forward through the sales process, correct?
A. Although as I alluded to, there are always -- cars are always improved, and every other year we would do a refreshing on cars. So we continued to stay involved with the cars even after they are in production.
Q. Okay. In total in your capacity as either a Vice President or Executive Vice President, how many engineers were there under your direction?
A. Broadly speaking because engineers involve people may

not be degreed engineers but they are technician, they are analysts, they are --
Q. I asked for engineers, not technicians, not analysts, people who are degreed engineers.
A. I would say we were something like over 7,000. I would say probably half of them.
Q. And during your experience as a Vice President and an Executive Vice President, can you tell me the range of the budget under which you operated?
A. In the, this is probably in, in the early '90s, it must have been like 1.4 billion, and later on it may have gone to 1.7 billion.
Q. And when you left active duty as Executive Vice President, what was your budget?
A. When I was running International, we were selling 5 billion cars worth in the world.
Q. Not while you were running International, okay. Through 1996, what was your budget?
A. In '96 is probably 1.7 or 1.8.
Q. Were you the chief engineer over the Grand Cherokee platform?
MS. JEFFREY: Are you talking ZJ?
MR. SACCO: Yes.
A. Well, I was head of Engineering when the, the Grand Cherokee, the ZJ was created at AMC starting in 1986.

BY MR. SACCO:
Q. Okay. And focusing on the fuel system of that vehicle throughout its entire engineering process from when you began working on it through your position as Executive Vice President, did you testify earlier this morning that your goal was to obtain zero fuel leakage in a crash test?
MR. FUSCO: Object to the form and duplicative.
A. Our standard inside the company was to pass a standard established by the Government called 301 crash test, and that tolerated some fuel leaks in the process, and our standard was not to have any fuel leaks.
BY MR. SACCO:
Q. Your standard -- I'm sorry -- would you repeat the last portion of what you just said?
A. As we were passing this test, which is a 30-miles-an-hour test, our internal goal was to have zero leaks, and that's the way we were designing against.
Q. Who did you report to as Executive Vice President?
A. Until 1990 -- as a matter of fact, in 1996 when I was promoted Executive Vice President, I reported directly to the CEO of the company, Bob Eaton.
Q. Okay. Would that be RJ Eaton?

A. Yeah.
Q. And who is RA Lutz?
A. RA Lutz was the president of the company and COO until 1990, the end of '95, and that were the middle of '96. And so I was reporting to him from the day I joined Chrysler in summer of '87 through the end of '95. Then Bob became Vice Chairman on his way to retirement, and I was promoted to report directly to the Chairman and CEO, Bob Eaton.
Q. Who was Mr. Boltz, B-O-L-T-Z?
A. Mr. Boltz was a colleague of mine who in the early '90s, I don't know before that, but in the early '90s, he was the chief strategic planner, product planner, Regulatory Affairs VP of the company.
Q. Okay. Who's TR Cunningham?
A. In the first part of the '90s, he was -- he became the head of sales and marketing for North America, and then he was, end up running Mexico at the end of that period.
Q. Who is DE Dawkins?
A. D. Dawkins?
Q. Yes.
A. D. Dawkins was a former chief product planner at AMC who ended up working for Ron Boltz in Regulatory Affairs.

Q. And who is L. Goldfarb?
A. I think Goldfarb was a counsel at Chrysler.
Q. An attorney?
A. Yeah.
Q. With the law department?
A. Yes.
Q. Who's S. Harris?
A. Steve Harris was head of Public Relation.
Q. And who is T. Kowaleski, K-O-W-A-L-E-S-K-I?
A. He was working for Steve as another PR guy.
Q. Okay. And who was first initial A. Liebler, L-I-E-B-L-E-R?
A. Liebler was, he was head of Marketing and maybe PR. I don't remember that.
Q. And how about CP Theodore?
A. Chris Theodore was one of the -- CP Theodore was -- Chris Theodore was a member of our team. He was the general platform manager for minivan.
Q. Okay. And how about GC Valade, V-A-L-A-D-E?
A. Gary Valade was the CFO of the company.
Q. The CFO?
A. Yes.
Q. And who is TG Denomme, D-E-N-O-M-M-E?
A. Tom Denomme was the Vice Chairman of the company in charge of labors, Labor Affair, Human Resources, IT,

and Government Relation.
Q. Going back to your days as an engineer, a developmental and design engineer -- let me, let m strike that question. Let me back up even further.
You graduated from an engineering school in France, correct?
A. Yes.
Q. What degree did they confer upon you?
A. The degree, the term in French is diploma which is like a degree that you get in this country in engineering college, when you have five years in an engineering college in this country.
Q. Okay.
A. So maybe it's not exactly -- it's more than a bachelor degree, and it's half of a master degree after that.
Q. Did you have any formal education in the engineering field beyond that?
A. I think that I was lucky to get a very broad education in engineering that helped me the first part of my career, was able to very young become involved in designing single-handedly racing engines which have great success in Motorsport at the time in the early '70s. The engine we designed with a friend of mine, another college mate of mine when we were 27 years old went on to win big race like the 24-hour Le Mans and

things like that.

Q. What engine was that? I'm a gear head, so I'm curious, okay?

A. The name was Renault Gordini 2-liter, was a 2-liter V6. I also became the head engineer for Motorsports. So I was involved beyond engines and designing race cars. So when I left Motorsport and was invited to join AMC by Renault in the early '80s, I converted myself to making small cars first and other cars and ended up being the chief engineer of AMC at some point.

Q. Okay. What professional certifications do you hold, if any?

A. I don't have any. I have been -- I have been recognized by large society like plastic engineers or body of engineers, I received honorary degree from them. I have to say that in 1993, I was nominated by colleagues to become a member of National Academy of Engineering in this country, which is this organization in Washington that has about 2,500 senior engineers and scientists, and I was elected after a peer review, not only of the committee but you are vetted by all of your colleagues. So I am an academician in engineering since 1993.

Q. Okay. And that's a merit-based selection process,

correct?
A. It recognized my competency as an engineer for what I've done in my career.
Q. Okay. Before you became a Vice President and Executive Vice President back in your days of straight engineering, I'm sure there were many occasions when you and other engineers would meet and discuss certain issues, correct?
MR. FUSCO: Object to the form.
A. Yeah, we were very active, no boundaries, no bureaucracy group, especially after we established a new, a new, a new Chrysler starting in the '89/'90 timeframe.
BY MR. SACCO:
Q. Okay. And during those meetings, you would talk about and you would reveal issues that were pertinent to the continuing design of a product, correct?
MR. FUSCO: Object to the form.
A. No, I don't think that's the way it worked. I said that like -- let me repeat what I've said in earlier questions, that the way we were tracking product creation and new car creation, whether it was a ZJ, a minivan, the Ram, the Neon, all these cars one after the other in the pipeline, there was such a task to manage 7/8,000 people, plus we say 3,000 engineers

working at a supplier place, some of them on site with them, and so the only way it could be managed effectively to execute a car, let's say, in 36 months, that we will have rendezvous. We will get together at certain point in the process, and I will be there, and we call them program review or maybe change the name over the time, but it was a principle that the leadership of engineering, we all go together, and we spent an afternoon understanding what the program was doing, how it was doing, what were the issues, what were the things.

BY MR. SACCO:

Q. I understand that but those were formal meetings, correct?

A. They were formal in their dates but the way they were conducted were if you were a young engineer, you wanted to come and see something, you were free to do that. If we were going to the proving ground, which was one aspect of designing cars is driving them for a day or two at the proving ground here or in Arizona, the engineers, the young kids that were there developing had the same voice and could express themselves.

Q. Going back to your days when you were doing developmental engineering, not when you were an executive level, but when you were doing engineering, okay, were there occasions when you would meet with other engineers who were in a similar capacity or role as yours and sit and discuss and reveal issues and perhaps even reveal fixes for those issues that were not documented?

MR. FUSCO: Object to the form.

MR. SACCO: What's the objection to the form, counsel?

MR. FUSCO: You're leading him. None of those facts are in evidence.

MR. SACCO: I asked him if there were any of those occasions. The objection is noted. The witness can answer.

MS. JEFFREY: If you want her to repeat it, she can.

MR. FUSCO: I'm sorry, there's no foundation for any of these questions but go ahead.

A. No, that was not the culture. If we were to -- we could fix things together but we will document them.

BY MR. SACCO:

Q. Were there ever discussions that you had with other engineers that were not documented?

A. No.

Q. Now, there were occasions beyond the era when you were

an engineer working in development with other engineers when you became an executive, Vice President and Executive Vice President, correct?
A. Yes.
Q. And during that period of time, were there times when you had meetings with other levels of executive at Chrysler?
A. Yeah, frequently. We would have a Monday morning big get-together, all the top people in the company to talk what we were going to do the week. We will have -- we would use driving cars as a way for us to commingle informally for an entire day at a proving ground talking about this program and others and so on. The culture that prevailed at Chrysler was openness and sharing issues and we -- books have been written about us. We broke down the chimney, if you wish, in the company for us to work better together.
Q. Okay. Was one of those such occasions when you met with other levels of executive, including Mr. Eaton, an occasion that concerned NHTSA's position on the minivan hatchback latches?
A. We certainly met together several times at the time of this challenge for everyone. It was always open and document ed, and it was not done behind closed doors or anything like that.

Q. Do you know whether or not at those meetings there was an attorney present?
A. I don't think so. It may have been in some occasion but they were not the regular group of people.
Q. Those meetings -- and by "those meetings", again, I'm specifically referring to the minivan hatchback issue meetings, okay?
A. Yeah, yeah.
Q. Was one of the purposes of those meetings to determine how to deal with the press?
MR. FUSCO: Object to the form.
A. No. First of all, our first concern was the customers and -- you know, without going back in history in detail, but we are concerned that because a limited number of accident happen regardless of what caused that, were causing anxiety with our customers, mostly mothers with kids in their cars going to school, we were really concerned about communicating with them, and the media was in a way helping and sometime not helping us. So we talked about the media.
BY MR. SACCO:
Q. How did NHTSA fit into that?
A. Well, they were involved with that because they received letters and then pressure groups were pushing and so on, and so we were in communication with them,

not me, but we were in communication with them.
Q. Did they want you to recall those minivans?
A. The Chairman -- eventually, yes.
Q. And was there a meeting at least, was there a meeting or more than one meeting held in an effort to thwart or hold back NHTSA's attempt to have you recall those vehicles?
MS. JEFFREY: Object to the form, and why are we talking about minivans here? This witness has to leave at 5.
MR. SACCO: I understand that.
A. If we had one, I was not part of it and --
BY MR. SACCO:
Q. Following those meetings, was General Motors brought into the loop with Chrysler about recalls?
MR. FUSCO: Object to the form.
A. I don't remember. I don't understand the question. Our role, you know, being the engineer, once we made a decision to make a recall of some type was to create, you know, a kit of parts to replace the part that was deemed defective, so...
BY MR. SACCO:
Q. Do you know John Dingell, D-I-N-G-E-L-L?
A. The Congressman?
Q. Yes.

A. I know of him. I cannot say I know him well.
Q. Did Chrysler enlist his assistance in an attempt to hold NHTSA off on the recall issue?
MR. FUSCO: Object to the form.
MS. JEFFREY: Object to form.
A. I don't know.
BY MR. SACCO:
Q. At or about the time that the Chrysler minivan hatchback latch was an issue with NHTSA, do you know whether or not GM had any safety issues with NHTSA?
MR. FUSCO: Object to the form -- actually, withdrawn.
MR. SACCO: Thank you.
A. No, I don't know any of that.
BY MR. SACCO:
Q. Now the 301 standard for rear-end crash tests permitted some fuel leakage, correct?
A. Per NHTSA specification, yes.
Q. Per NHTSA, yes. How much do you know?
A. I don't remember. I know we were collecting it with a little bottle, but I don't remember how much it was.
Q. Okay.
A. And it was a time -- it was so much per minute or so much within half an hour. I don't remember the test.
Q. Okay. Do you know who Dale Dawkins is?

MS. JEFFREY: He's been asked this question like four times, including five minutes ago. So go ahead and ask it.

MR. SACCO: I didn't ask it five minutes ago.

MS. JEFFREY: Go ahead and answer it again. You asked D. Dawkins.

MR. SACCO: I don't know that that's Dale Dawkins, sorry.

MS. JEFFREY: It is Dale Dawkins.

A. It was the same guy that was there in the '90s. He was part of Mr. Boltz's organization and dealing with recall and contact with NHTSA and other administration in the Government.

BY MR. SACCO:

Q. Are you familiar with the term dynamic crush?

A. Yeah.

Q. In the conduction of crash tests under 301 standards, is a change in dynamic crush necessarily a reason to be concerned?

MS. JEFFREY: Object to form.

MR. FUSCO: Object to the form.

A. I'm not sure I understand the question. I know what dynamic crush is. Dynamic crush means that if you take, let's say, a piece of tubing and you put pressure and you go slowly, it will collapse a certain way. If you take like an explosive and you push it, you know, much like a blow, dynamically it will collapse in a different way. So that's why crush are so quick, that structure that protect anything in the car, whether the legs of the passenger or the fuel tank or collapse in a dynamic way.

BY MR. SACCO:

Q. Does the measure of dynamic crush as measured by automotive engineers have anything to do with the performance of the fuel system in the ZJ model?

A. I don't think so.

Q. I'm sorry?

A. I don't think so.

Q. You referred earlier in your testimony, did you not, that the FMVSS regulations, along with a Chrysler set of regulations, determines how a vehicle is designed and built, correct?

A. Yes.

Q. What were the Chrysler regulations referred to? Did they have a title or were they in a volume; how were they established and kept?

MS. JEFFREY: And just let me object to the form because I thought he used the word standards, not regulations.

A. Standards. Yes, they are standards.
BY MR. SACCO:
Q. We'll change the word regulations to standards then.
A. Standards. Design is to design to standard and it goes to everything in the car, what I was saying earlier, that we have this bookshelf, an entire wall full of this blue book called Chrysler standard, and it goes from determining what type of oil you have to test at minus 40 degrees to make sure that does not freeze when you start the fan to cool the engine and go all the way to safety and how you test, how you heat-treat parts, how you specify, put rust protection on bolts to everything. So the entire car is covered by this standard.
Q. What's the Engineering Book of Knowledge?
A. The Book of Knowledge which we -- as we were getting better at doing what we were doing in the early '90s, it was clear that, over time, that the good science and good practices we were committing at the company had to be passed to younger people or new people joining us, and therefore, I instructed a group within our organization to find a way to capture, document in a digital form, you know, the good practice of a company, whether they were for designing a part. So if you are young engineer and you are told you're

going to design the next water pump for the next engine, you can have access to the five water pumps that were designed five years below before that.

Q. Did you have anything to do with actually authoring that set of digital standards?

A. Personally, no, but I insisted that we document everything all the way down through the organization, so it was open to everyone.

Q. In your capacity as a Vice President and Executive Vice President, was it your goal to try to do things better than the basic standards?

MR. FUSCO: Object to the form.

MS. JEFFREY: And join.

A. Well, the industry is very competitive in all aspects of it. So you have to create a car that looks better than your competition, is more fuel efficient, costs no more than your competition, make money for the shareholder because you need that to be able to invest in the next car. And so this is where you are juggling it. In the meaning time, there's no question that you want to win because if you, you don't make a car that attract people, that -- so being good enough and never bend the rule, it has to be -- it has to fit people. We had even a motto. We wanted to have cars that people wanted to buy from us and, in fact, we

succeeded in creating these cars in the '90s. We wanted the people to come back and buy again from us because we wanted them to have a good experience and come back and be loyal to the company, and we succeeded to a great extent in started doing that, so...
BY MR. SACCO:
Q. That had to do with consumers' expectations?
A. Yes, customer expectation and, yeah, about making -- making cars is balancing a lot of, a lot of things that sometime are counterproductive to each other, but that's the way cars are made.
Q. As a Vice President and an Executive Vice President, what is the world that you expected your engineers to work in?
MR. FUSCO: Did you say the world?
MS. JEFFREY: Object to the form.
MR. SACCO: The design world.
MS. JEFFREY: If you can answer that.
MR. FUSCO: Object to the form.
A. Maybe -- well, first of all, I have to say one thing. I had the policy that from the day I sat down in my new seat at Chrysler as the head of Engineering, I said my door would be open to anybody in the company, any of my employees, whether they are in the back of a

lab or anyplace. They could always make an appointment and come and see me for a minute or two or five minutes or ten minutes, and I was staying in my office until sometime until 7 p.m. at night just to make sure that whoever wanted to speak could see me. So we wanted people to feel that they were free to share their concern with me.

Some were ludicrous but some were useful, and at some point if something was not going right in one-quarter of the building among the 7,000 engineers, I was anxious to hear about it, and this access I think was, was not common. I know other organization and other car company that don't let that happen but it was practiced in my time.

BY MR. SACCO:

Q. In your capacity as Vice President and Executive Vice President, did you expect your engineers to design a vehicle for tests that did not exist at the time?

MR. FUSCO: Object to the form.

MS. JEFFREY: Join.

A. I was not expecting engineer to design cars against criteria that were not defined.

BY MR. SACCO:

Q. Would you expect your engineers to design cars for real world situations?

MR. FUSCO: Object to the form.

MS. JEFFREY: Join.

A. That's an interesting question in the sense that the real world -- there is no car company in the world that design cars that are satisfactory for 100% of its potential buyers. We all design what we call for 99%. So if you are a very small person or a giant, you may not fit in the car in some way and fashion, and it is expected that you cannot create a mass-produced object that is satisfactory for the side of the bell curve of the population. It is true for, you know, size, weight. It is true for how much we are able to protect, let's say in the case of safety, how much we can provide protection for. We provide protection for a great number of case and accident, but we cannot guarantee that we produce -- and I explained that earlier in previous question -- we cannot guarantee that if there's a crash happened at much higher speed than average accident or in rare condition.

For example, rear crash are very rare. Side impact are much more common by statistic of the Government. So you cannot, as much as you try, you cannot be creating a perfect car for every condition, for every driving condition, for every driver or passenger of the vehicle.

BY MR. SACCO:

Q. Okay. I'm going to read something to you, and this is a direct quote. I'm going to represent to you that these are exact words out of your mouth this morning: No car should be rear-ending another vehicle at 50 miles an hour because that would be very dangerous.

Given that representation, what about at 40 miles an hour, sir?

MR. FUSCO: Object to the form.

MS. JEFFREY: Object to form and foundation.

A. No. I was saying that in a way that -- I'm not saying that because of bragging or anything but this is part of the engineers who release a car for production for customer or for my family that I know their condition. They are not -- as much time and energy and I will say conscience we put into creating a new car, there may be a condition that could happen to me, to someone I know, a friend, that will be outside of that boundary and it would be a tragic outcome, and in the context of saying, it was well-known that high-speed crash are much, much more dangerous and deadly because the energy released in crash go within square of it, of the speed and, therefore, a small increase in speed is a lot of damage to be done to the car.

BY MR. SACCO:
Q. Sir, you've used the term high-speed crash. What does that mean?
A. Well, a car at a stop and another car from the side or from the back forget to stop and bump into at 50 miles an hour. This is a high-speed crash.
Q. What about 40 miles an hour?
A. It would be better but it would still be very dangerous.
Q. Is that a high-speed crash to you?
A. Well, if you walk into a store and you don't see there is a glass door, you will hurt yourself a lot when you walk at 4 miles an hour or 3 miles an hour. So the fact that it's out to -- impact in an accident are so terrible, and even at low speed, they are extraordinarily damaging. So a 30-miles-an-hour crash is a big crash. A 40 miles is almost double the energy and maybe 50 triple. And when you realize that you can open your, you know, bleed because you bump into a glass at 2 or 3 miles an hour, you realize what this is about.
Q. Okay. Mr. Castaing, when you were talking about the performance of the 301 safety test earlier today, you indicated that it was a steel barrier, correct?
A. Yeah, it was a flat barrier.

Q. Okay. Would there be a difference in how that test was performed if the barrier were plywood instead of steel?
A. I don't know.
Q. You're an engineer, right?
MS. JEFFREY: You don't have to answer that.
BY MR. SACCO:
Q. Is your answer still "I don't know", sir?
A. I think if the weight, I will say if the plywood was rigid enough and the weight of the chariot is the same, the impact would be the same. On other hand, I would say that maybe there was some confusion this morning when we are discussing the merit of crashing cars against cars. A car crashing into another car is less dangerous than a flat barrier crashing into things because there is no collapse. When a car crashed into another one, it starts collapsing itself absorbing energy. When it is a flat barrier, you have 100% of the energy going into the car that is sitting there. So as defined by NHTSA, the 301 test done with the flat thing is a very violent crash, more violent than if you were to send a car at the same speed in the back of the car.
Q. And in those tests, the vehicle that is being hit by

the barrier is stationary, correct?
A. Yeah, yeah.
Q. Did you tell us earlier that you were not aware of any 301 tests that the ZJ failed?
A. Well, I can't remember the detail but I remember -- I said earlier that maybe, because we have more time with delay caused by the de-fall of this program, the ZJ was a program that was going very well from day one. We were clicking. The car was getting ready for production and passing all the tests and doing durability and so on. So it was a trouble-free program I would say, which is not always the case.
Q. Did the ZJ ever fail a 301 crush test in your -- to your knowledge?
A. No. I think if it failed one, someone would have been done to fix it. I know that for a fact.
Q. In your capacity as Vice President and Executive Vice President, if there were a failed 301 test, would you want to know about it?
A. Yeah, I would know about it, but that doesn't mean that I remember now if we had an issue or not.
MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 17
4:45 p.m.
BY MR. SACCO:

Q. I'm going to mark a 301 test as Exhibit 17 and that test is Number 5208. Mr. Castaing, would you look at that, please, and tell me whether or not there's failure on that test? And by "failure", I'm being very specific. I'm talking about fuel system failure.

A. I cannot understand whether what happened and what this is about, report does say. So it looks like it is a routine test of 1995 validation test which is the one I referred to where we were testing cars randomly to make sure we're just still compliant.

Q. Okay. But let me help you out, okay? The document will speak for itself. But does that document not indicate that there was fuel leakage in static rollover in excess of federal standards?

MS. JEFFREY: Can you point him?

MR. SACCO: Well, part of the problems with the Chrysler 301 tests is they're not uniform. So you will find the results all over the place in haphazard fashion but it's in there.

MS. JEFFREY: I thought you were looking at the same document.

MR. SACCO: No, I'm not.

A. In the end, there is a post test remark: There was no fuel leakage during impact, nor during the subsequent 30 minutes.

BY MR. SACCO:

Q. You want me to find it?

A. I understand. And there was fuel leakage during the static roll in excess of the Federal standard.

Q. So there was fuel leakage in that test, correct?

A. Yeah.

MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 18
4:47 p.m.

BY MR. SACCO:

Q. Let me show you Exhibit 18 which is Test Number 5380. What's the date of that test, sir?

A. 1996 validation.

Q. Okay. And let me help you with that one, too, okay? Does that test indicate that there were vent and fuel line separations from the plastic tank welds?

A. There were partial separation of the vent line from the tank.

Q. Okay.

MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 19
4:49 p.m.

BY MR. SACCO:

Q. Let me show you Exhibit Number 19, which is Test Number 5441.

You're collecting all the exhibits?
MS. JEFFREY: Yeah.
MR. SACCO: Okay.
BY MR. SACCO:
Q. Now, Test Number 5441 was conducted in April of 1995, correct; is that what it says on the front?
A. Yeah.
Q. And that was a 1994 production vehicle which was modified as an intent vehicle for 1996 compliance, correct?
A. Yeah.
Q. What's a Schrader valve, sir?
A. The what?
Q. What is a Schrader valve, S-C-H-R-A-D-E-R?
A. I don't remember.
Q. You don't know what a Schrader valve is?
A. No.
MS. JEFFREY: Object to form. He said he didn't remember.
A. I don't remember.
MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 20
4:50 p.m.
BY MR. SACCO:
Q. Okay. Let me show you Exhibit 20, sir, and that is

Test Number 5681. And let me help you out with that. The results of that test indicate that there was fuel leakage at impact at 30.2 miles per hour, was there not?
A. Yes. It does not say that it succeeded the standard, though.
MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 21
4:51 p.m.
BY MR. SACCO:
Q. Okay. Let me show you Exhibit Number 21 which is Test Number 5789, and the result of that test indicated a leak in the engine compartment, correct?
A. Yes.
MARKED FOR IDENTIFICATION:
DEPOSITION EXHIBIT 22
4:51 p.m.
BY MR. SACCO:
Q. Okay. And finally, let me show you Exhibit Number 22 which is Test Number 5854. That test also indicates that there was a failure at impact, correct?
A. Yeah.
Q. Had those test failures been reported to you, what action would you have taken?
MS. JEFFREY: Object to form.

A. Yeah, I don't know the context of these tests, whether they were to validate the solution or something, so I, I -- I don't know. There were -- there were procedure in the company to deal with things like that and they were followed. If it was an extraordinary thing that was not followed, it would have been brought to maybe Ron Boltz and my attention for us, you know, so...

BY MR. SACCO:

Q. Okay. Had they been brought to your attention, what would you have done?

MS. JEFFREY: Object to form.

A. I would have looked at them.

BY MR. SACCO:

Q. As a Vice President and an Executive Vice President, do you have knowledge as to whether or not Chrysler and more particularly the Jeep division had a formal compliance policy?

A. Yes.

Q. Who was in charge of that?

A. Well, it was everybody. Compliance policy, I'm not too sure I recognize the exact term, but we had procedure, like I said. We would not let something or say, Oh, that's okay by an employee or an engineer. If it was something like that, that was public kept in the records. So there was no hiding or anything. We

would do something about it.
Q. Okay. During your tenure as Vice President and Executive Vice President, did Chrysler have a formal records retention policy?
A. Yes.
Q. Who would have been the custodian of that policy?
A. Like, like most companies, the legal department would be the one that help every organization organize its, you know, create and maintain a retention policy and also in some case audited the compliance of, of the organization with that. So we -- there are some document, like the one related to NHTSA, which are very clear. There are other ones that are just a company policy to say we're going to keep that for ten years, we're going to keep that for five years, we're going to keep that for two years. And so it was in place. Also, same thing at AMC. It was not -- in my days at AMC, we had a compliance policy -- a document with retention policy as well.
Q. Do you know what the various record retention periods were while you were Vice President and the Executive Vice President?
A. The policy, itself?
Q. The periods of time.
A. I don't remember but we had -- like I said, it was

document that we would keep and encourage people to keep no more than two years because they were not -- they were draft or things like that. Then we have document that were, you know, our meetings where we are going of where we would save five years or more, some ten years and some forever. There are document that we never shred, never throw away.
Q. As Vice President or Executive Vice President, did you ever tell anyone in your employ to destroy records prior to the formal records retention period expiring?
A. No.
Q. While you were Vice President or Executive Vice President, did you ever become aware of anyone in your employ telling anyone else to destroy documents before the records retention period expired?
A. No. It was the opposite. We were really -- the last thing company wants is to have the reputation of not running properly the business, and like I said, we are highly-regulated industry. It is our interest to keep the records of what we do. When we cannot do that -- sometime we keep tons paper, like I'm sure during discovery people see how much we kept. No, there was no, no dispute amongst ourself that it was a good policy to enforce.
Q. Okay. Speaking of your term highly regulated and

drawing your attention to the 301 standards, that was self regulation, wasn't it?
A. Yeah. In this country when you tell the Government you are complying, if you don't, you're liable. So yes, in a way it is, but the penalty for cheating, not acceptable, so...
MR. SACCO: Thank you. That's all I have.
MR. FUSCO: Do you want to go?
MS. JEFFREY: No. Go ahead.
MR. FUSCO: Can you hear from here or do you want me to move?
COURT REPORTER: You're fine.
EXAMINATION
BY MR. FUSCO:
Q. Sir, my name is Chris Fusco. I'm an attorney. I represent the Loman Auto Group in this matter. I'm going to be asking you a series of questions. If there's a question I ask you that you don't understand or that you want me to rephrase, please tell me to do so and I'll be happy to do that. Do you understand that?
A. Yes.
Q. If there's a technical word or a Chrysler term that I use wrong, please feel free to correct me because I probably will, okay?

My client is the Loman Auto Group located in Parsippany, New Jersey. Do you know any of the principals of the Loman Auto Group, sir?
A. No.
Q. From the time the ZJ went into production to the time the ZJ was cancelled, did you have any communications with any principals of the Loman Group concerning anything regarding the ZJ?
A. I don't even remember the name of Loman, I don't.
Q. Okay. Did you ever have a discussion from the time the ZJ started production to the time the ZJ ended production with John Loman, principal of Loman Auto Group?
A. No.
Q. Do you recall from any time the ZJ began production to the time it ended production John Loman from Loman Auto Group being present at one of Chrysler's product planning meetings with regard to the ZJ?
A. Say that again.
Q. Do you recall from the time the ZJ went into production until the time it stopped John Loman from Loman Auto Group being present at Chrysler's product planning meetings with regard to the ZJ?
A. No.
Q. Do you recall John Loman being present, again from the

timeframe of the ZJ, at Chrysler's fuel -- is it safety department meetings?
A. No.
Q. Okay. How about the same question with regard to John Loman being present at a vehicle safety emissions --
I got it wrong. How does that go?
MS. JEFFREY: Emissions regulatory committee.
BY MR. FUSCO:
Q. -- regulatory committee?
A. No.
Q. Can you tell us any conversations that you've ever had with John Loman from Loman Auto Group today?
A. Never.
Q. Okay. Have you seen a document today that's been authored by John Loman from the Loman Auto Group?
A. No.
Q. Okay. We've used or I heard a word today called underriding used.
MS. JEFFREY: Underride.
BY MR. FUSCO:
Q. Underride. Do you have in your mind a definition of what underride is?
A. Frankly, it's the first day that someone described the contact between cars that have different heights, if I

understand what you mean. We use -- I never heard, not used in the industry as a technical term to discuss that, but I understand what was meant by it.
Q. What do you understand it to mean?
A. Sorry?
Q. What do you understand that term to mean, underride, if anything?
A. Underride in the context of the previous deposition was describing the contact, an accident or contact between a car that, let's say, has a bumper height, heights above the ground that is higher than the bumper height of the car getting in contact with, with the first car, implying that if you have different heights of bumper, one car can slide or violently in the case of an accident underneath another one.
I mentioned, also, that the height of bumper does not necessarily reflect the height of where the structures are in cars, so what you see not necessarily what happened, so...
Q. Did there come a time I believe in 2009 when Chrysler went into bankruptcy?
Did there come a time in 2009 when Chrysler went into bankruptcy?
A. I'm not sure I understand the question.
Q. Did there come a time --

A. Yeah.
Q. -- it may be 2009 when Chrysler --
MS. JEFFREY: Chrysler, LLC.
BY MR. FUSCO:
Q. -- went into bankruptcy?
MR. SACCO: Why don't you ask him if he knows. He wasn't with Chrysler then.
BY MR. FUSCO:
Q. Do you know that?
A. Of course I know because I had a vested interest in my pension.
Q. Do you know what happened to the dealership at Loman regarding Jeeps after Chrysler went into bankruptcy?
A. No, I don't.
Q. Okay. You've been asked a couple of times today about assuming accidents at speeds, and you've been told about Ms. Kline and her accident, and you've also used the phrase high-speed impact. Would you consider an impact at 70 miles an hour by an inattentive driver to be a high-speed impact?
A. Very high speed.
MR. FUSCO: Thank you, sir. I have nothing further.
MS. DeFILIPPO: May I ask you just one follow-up?

MS. JEFFREY: You've got Gill and we've got me.

MS. DeFILIPPO: Oh, I'm sorry.

MS. JEFFREY: Jim, do you have any questions?

MR. GILL: No questions for Mr. Castaing. Do you have any?

MS. JEFFREY: I don't have any.

MS. DeFILIPPO: Just a quick question.

RE-EXAMINATION

BY MS. DeFILIPPO:

Q. Mr. Castaing, you just said you knew about the bankruptcy because you had a vested interest in the pension. Are you still receiving your pension?

A. No, I lost it.

Q. Do you receive anything from Chrysler?

A. Not anymore.

MS. DeFILIPPO: Thank you. That's all I have.

VIDEO TECHNICIAN: This concludes today's deposition. The time is 5:03 p.m. We are off the record.

(The deposition was concluded at 5:03 p.m. Signature of the witness was not requested by counsel for the respective parties hereto.)

CERTIFICATE OF NOTARY

STATE OF MICHIGAN)
) SS
COUNTY OF MACOMB)

I, LEZLIE A. SETCHELL, certify that this deposition was taken before me on the date hereinbefore set forth; that the foregoing questions and answers were recorded by me stenographically and reduced to computer transcription; that this is a true, full and correct transcript of my stenographic notes so taken; and that I am not related to, nor of counsel to, either party nor interested in the event of this cause.

LEZLIE A. SETCHELL, CSR-2404
Notary Public,
Macomb County, Michigan.

My Commission expires: April 17, 2012

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Deposition of Francois J. Castaing
14 June 2011
Exhibit One

In the matter of :

KLINE versus VICTORIA MORGAN-ALCALA, CARLOS ALCALA, NATALIE RAWLS, DAIMLERCHRYSLER CORPORATION (AKA CHRYSLER CORPORATION) LOMAN AUTO GROUP, CHRYSLER GROUP LLC, et al.

Inter Company Correspondence

Telephone

Date 12/14/87

To — Name & Department

CIMS Number

Jeep & Truck Engineering

From — Name & Department

CIMS Number

F. J. Castaing

Subject: Organization Charts

Attached is a complete set of organization charts for Jeep & Truck Engineering.

Castaing

F. J. Castaing

Δ π EXHIBIT 1
Deponent Castaing
Date 6-14-11 Rptr. JAO
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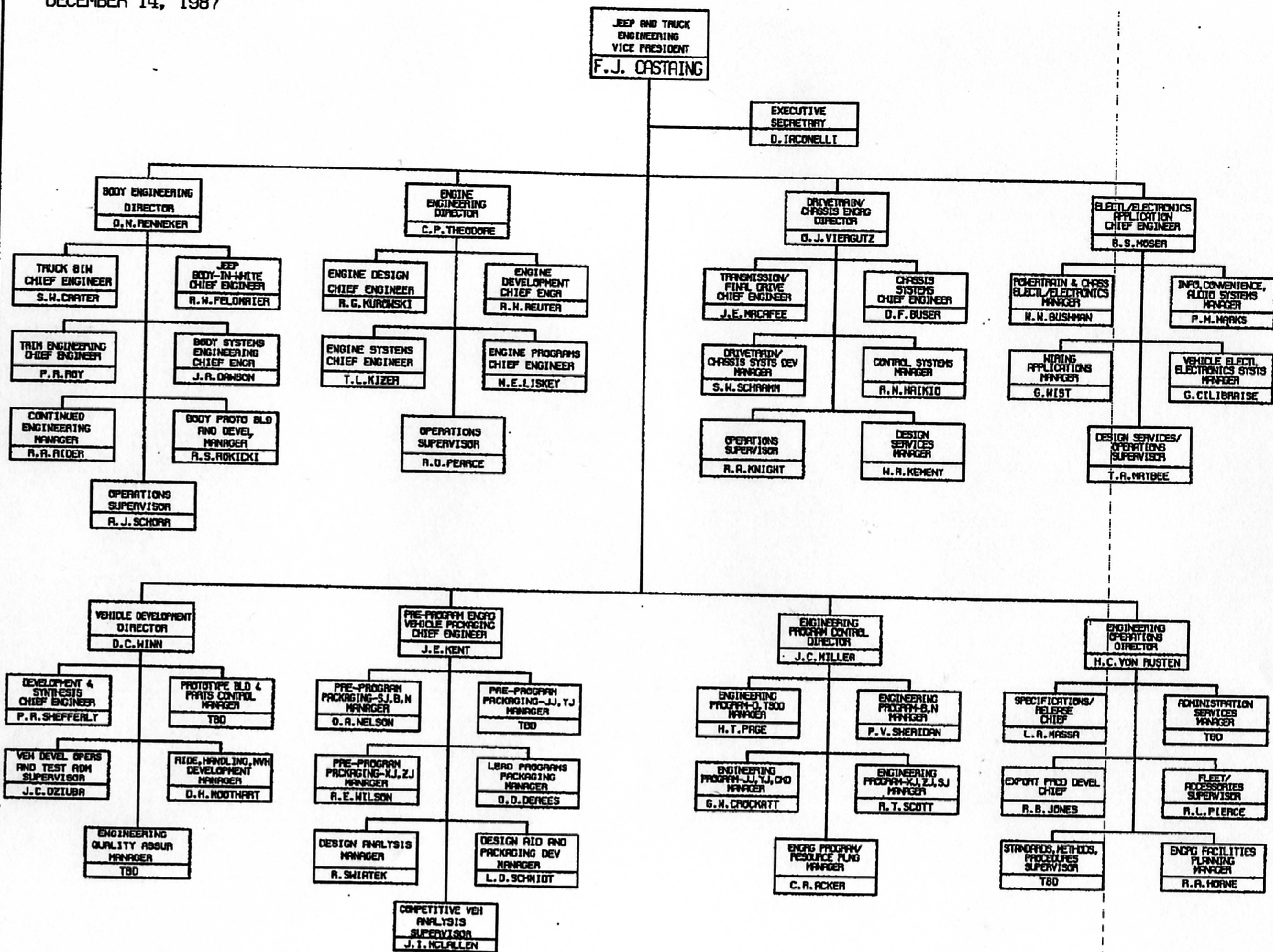
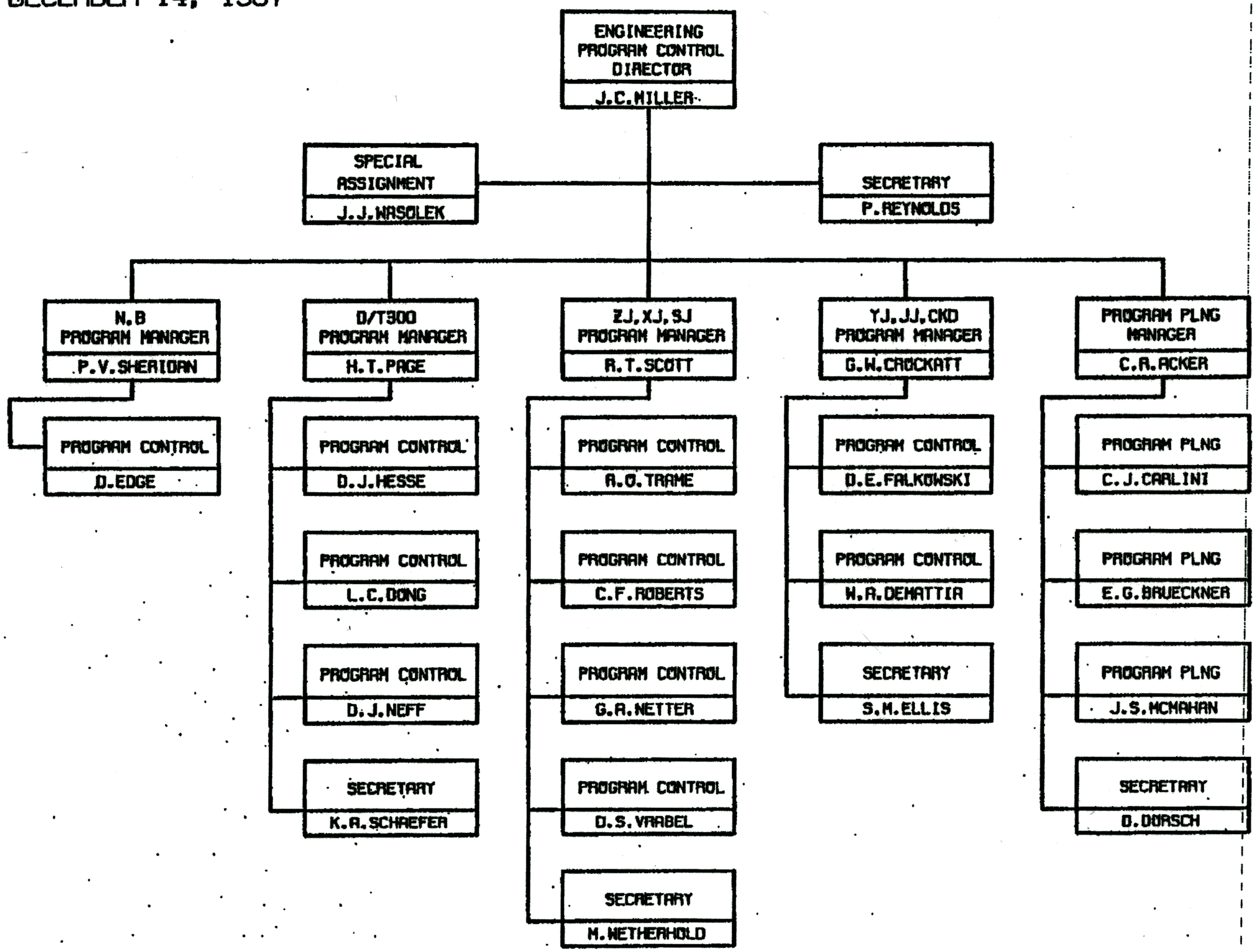
JEEP AND TRUCK ENGINEERING

DECEMBER 14, 1987



LILA GAGE/38472

ENGINEERING PROGRAM CONTROL
DECEMBER 14, 1987



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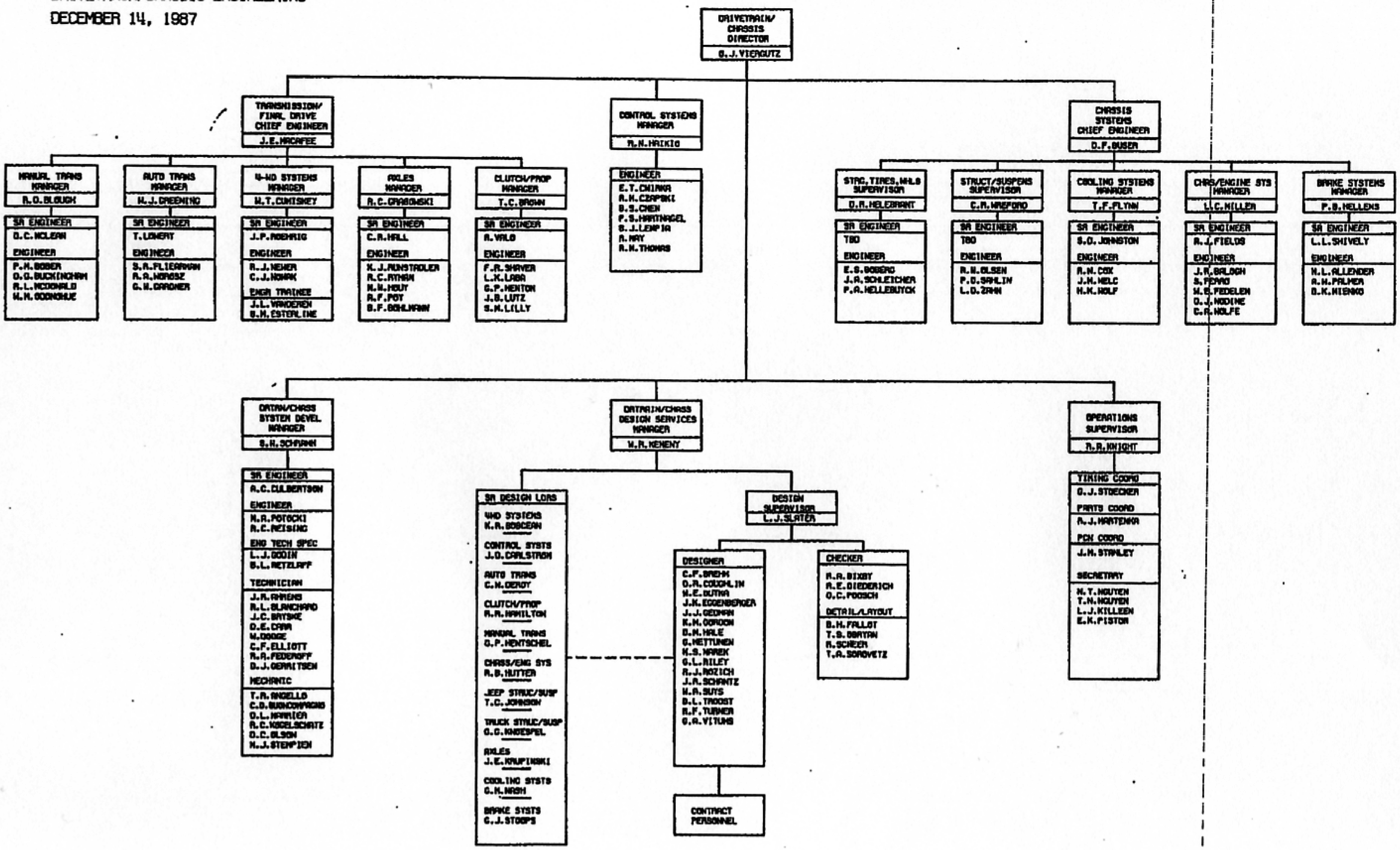
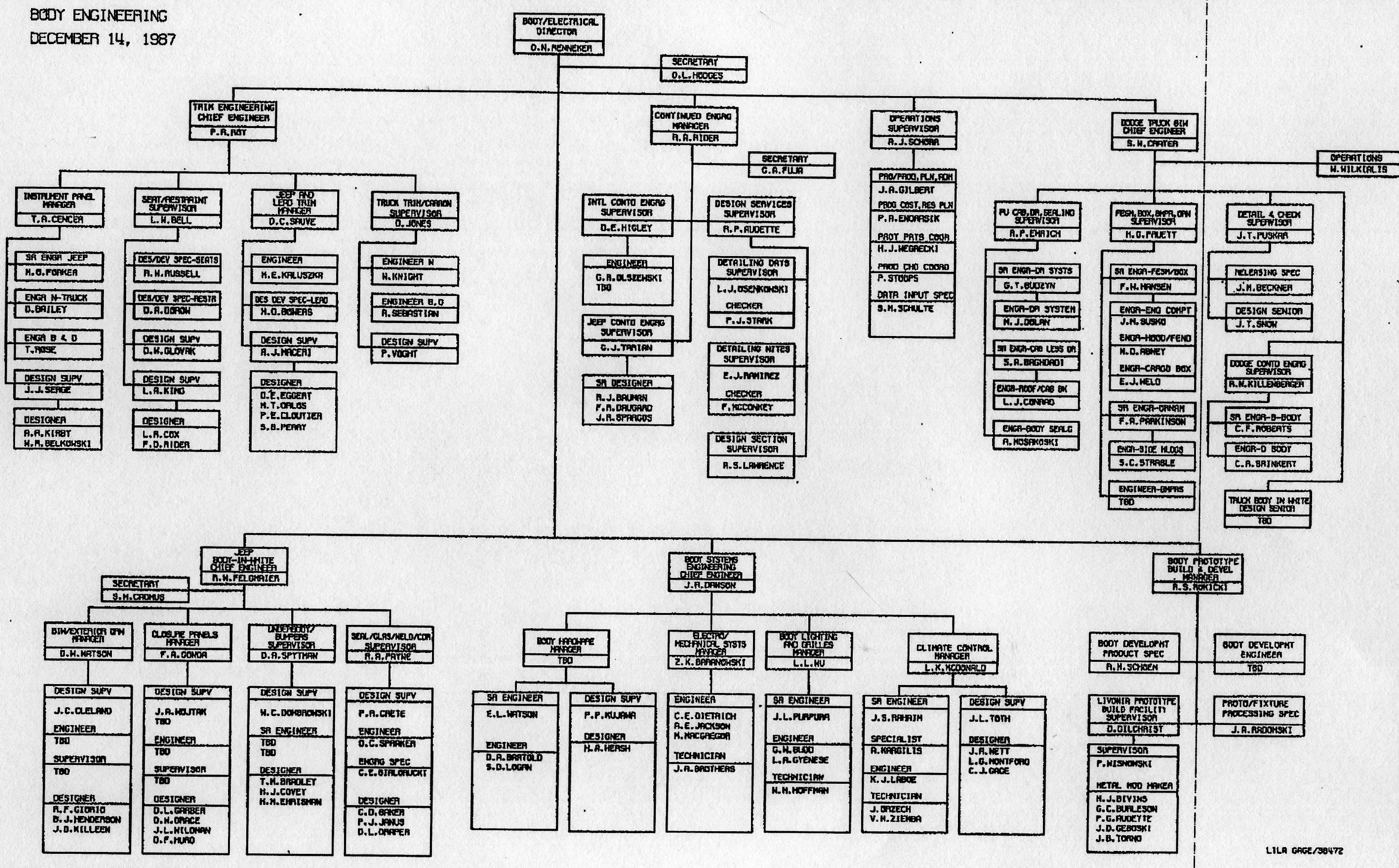
DRIVETRAIN/CHASSIS ENGINEERING
DECEMBER 14, 1987



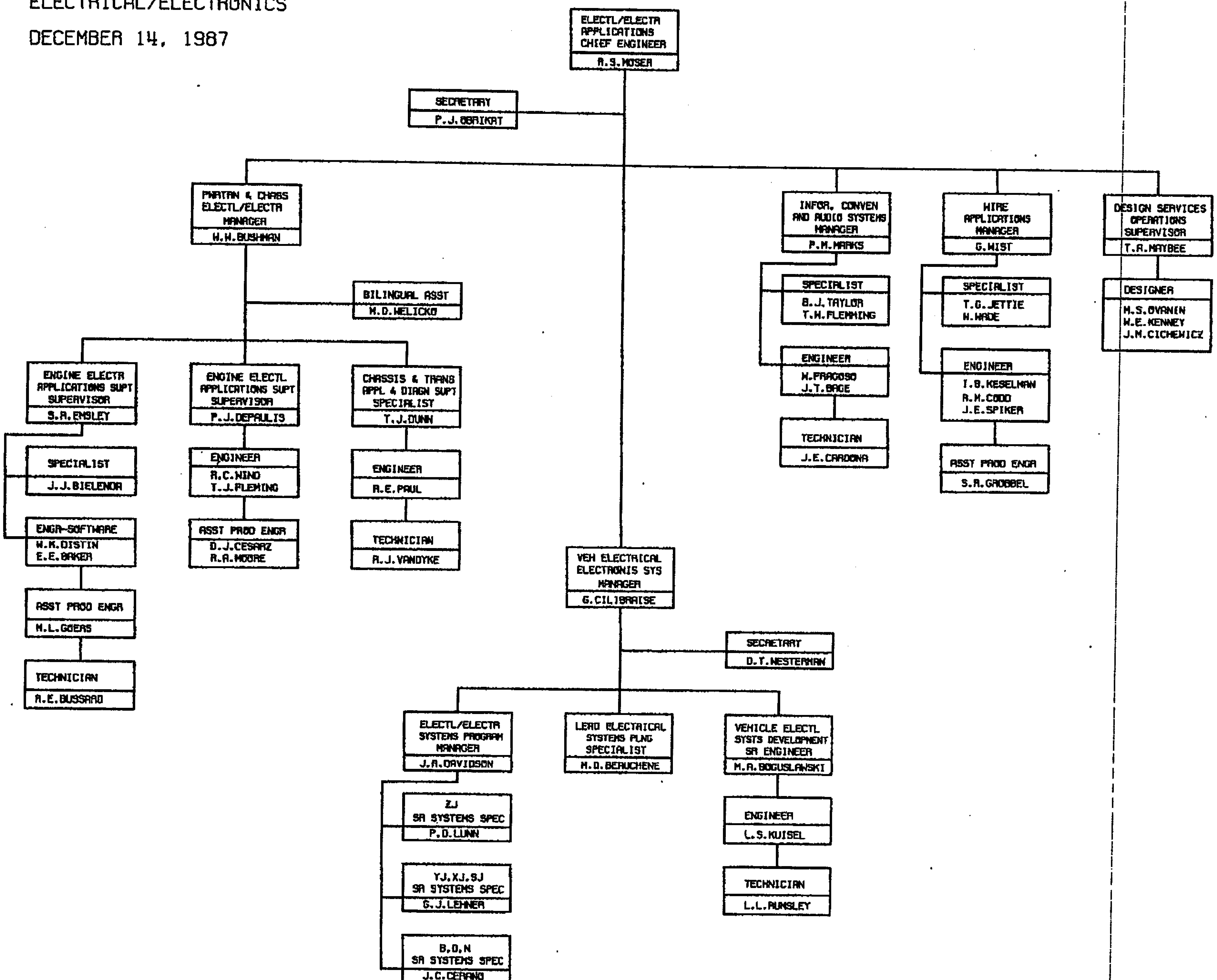
LILA GADE/30472

BODY ENGINEERING
DECEMBER 14, 1987



ELECTRICAL/ELECTRONICS

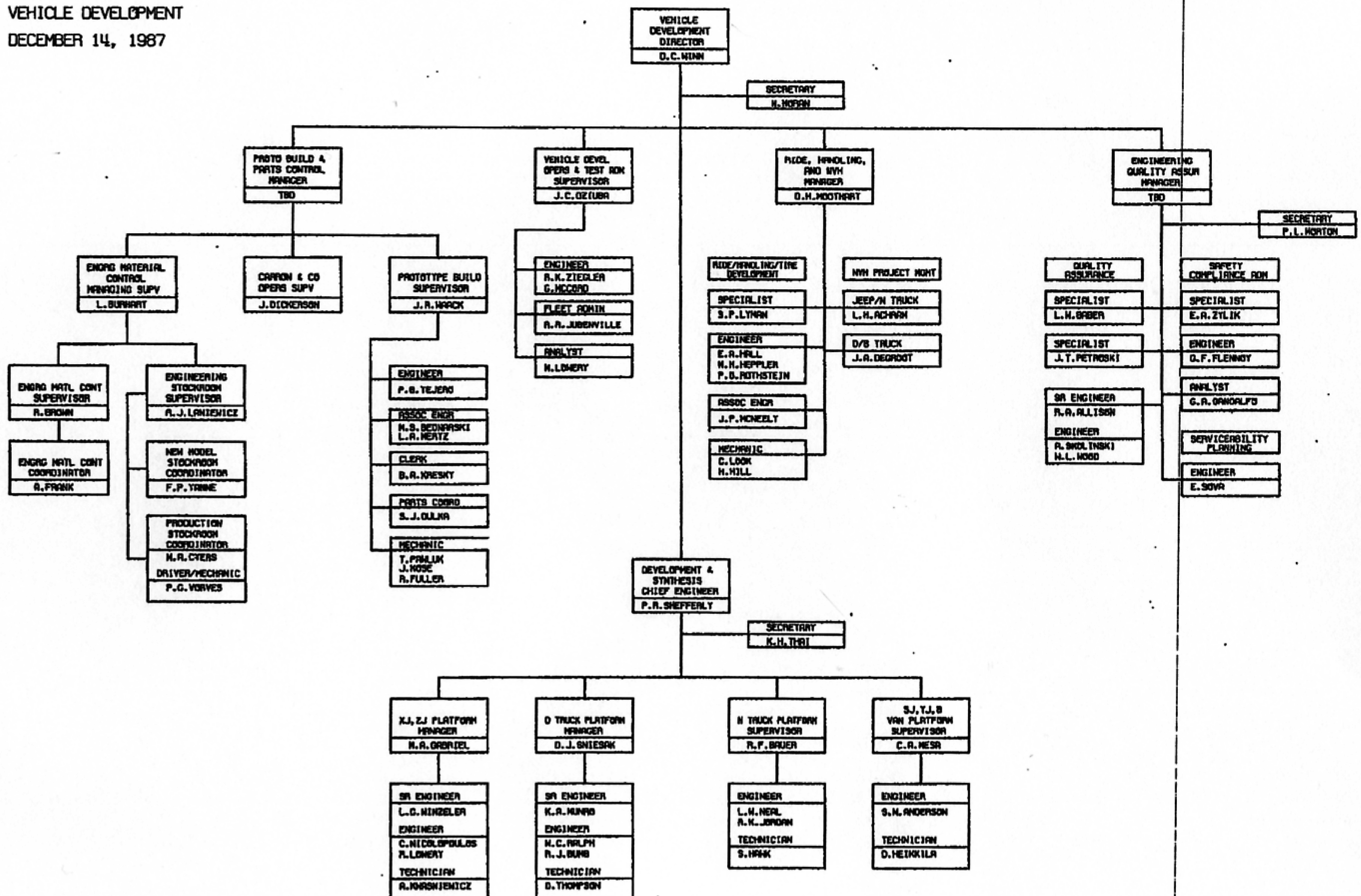
DECEMBER 14, 1987



LILA GAGE/38472

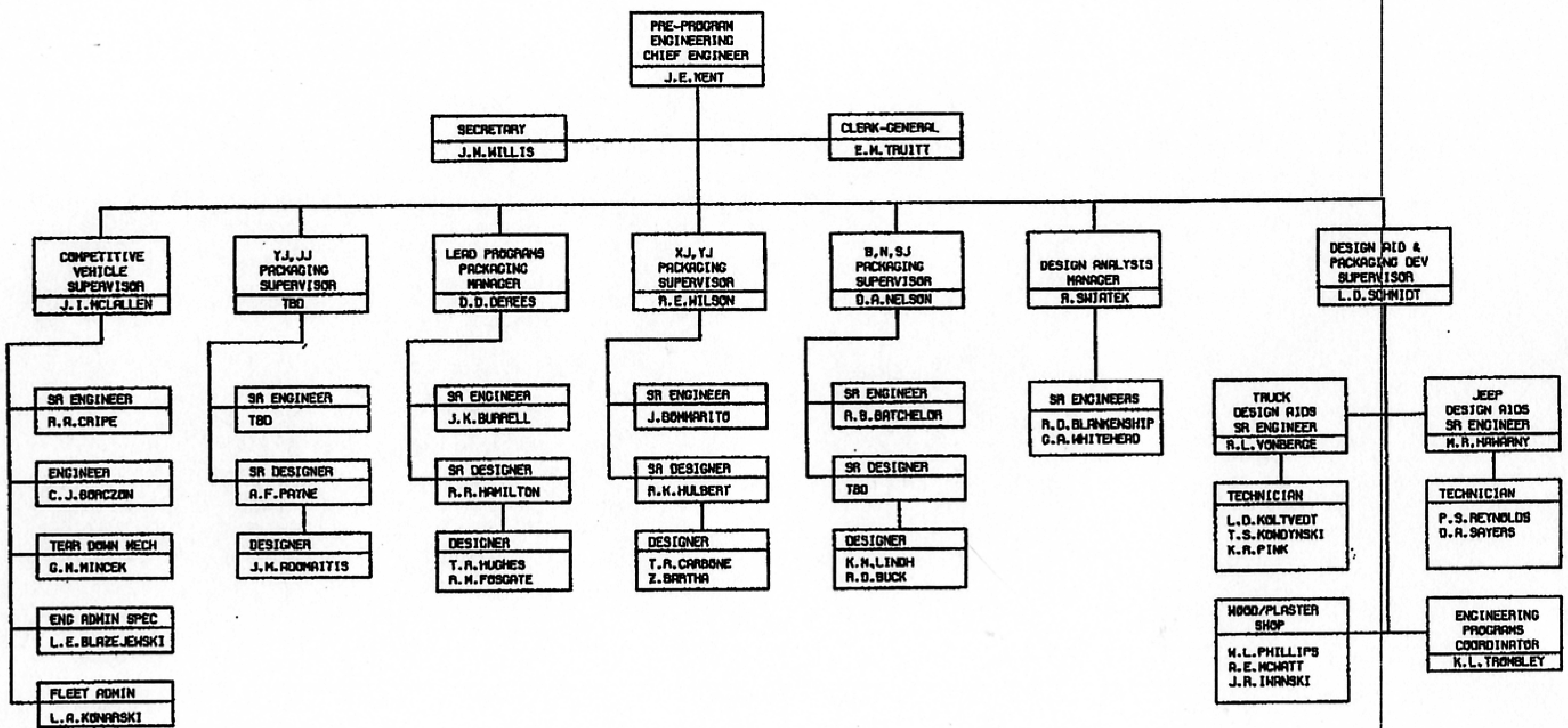
VEHICLE DEVELOPMENT

DECEMBER 14, 1987



LILA GRDE/90472

PRE-PROGRAM ENGINEERING & VEHICLE PACKAGING
DECEMBER 14, 1987



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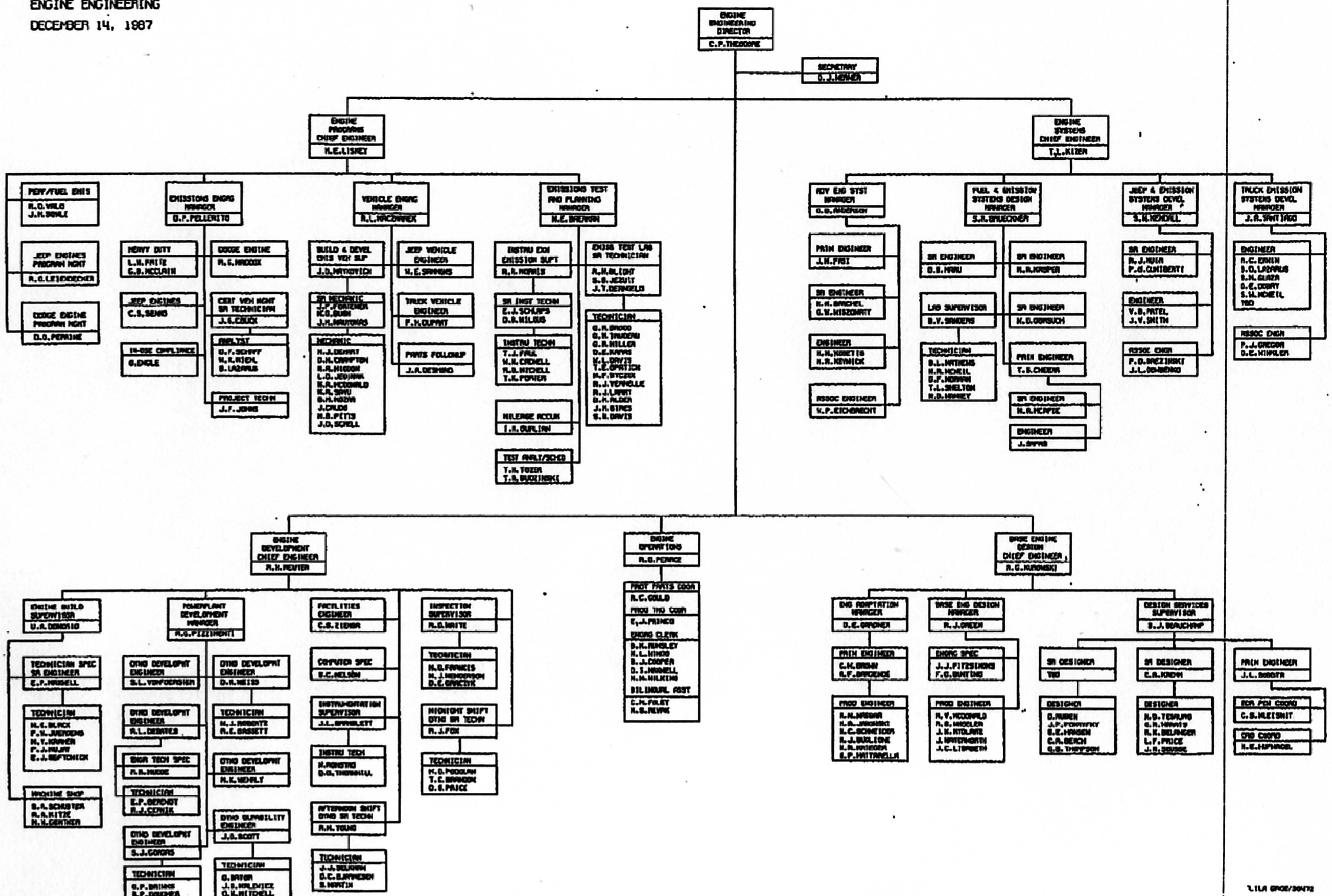
ENGINE ENGINEERING
DECEMBER 14, 1987



Deposition of Francois J. Castaing
14 June 2011
Exhibit Two

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Thursday, January 17, 1991 Vol. 11, No. 2

CHRYSLER CORPORATION

Times

A weekly newspaper for Chrysler employees and their families

Lutz named Chrysler Corporation President

Chrysler reorganizes to promote teamwork

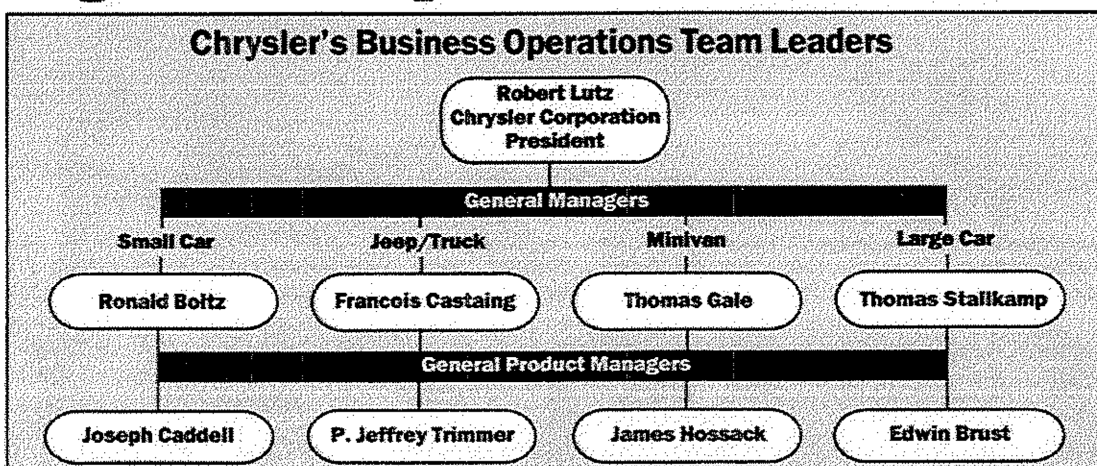
Chrysler made a series of organization changes Jan. 14, most of which are designed to strengthen the company's commitment to the platform team concept.

• Robert Lutz has been named President of Chrysler Corporation. His former title, President of Chrysler Motors, as well as the title of Chairman of Chrysler Motors, have been discontinued. Lutz is responsible for all North American automotive activities including sales, marketing, product development, procurement and supply, and manufacturing. He is also responsible for Acustar, Chrysler's parts subsidiary, and Chrysler operations in Mexico.

In addition, four general managers were appointed to coordinate all product development and market and consumer inputs for both current and future product lines. The four appointees are all currently company vice presidents and will retain their present areas of responsibilities in addition to their new general manager duties. All four executives report to Lutz.

• Ronald Boltz has been appointed General Manager—Small Car Operations and con-

see Platform, page 4



Briefs

Gulf crisis prompts security measures

Chrysler Security and Fire Prevention departments have increased precautionary security measures at U.S. manufacturing plants and major office locations in response to the Persian Gulf situation and the possibility of terrorist attacks.

Many of the preparations may not be noticeable, but increased personal identification and vehicle checks at traffic gates may result in delays while entering or leaving Chrysler facilities.

The Security Office also asked that employees notify local security personnel if they hear or notice anything out of the ordinary—for example, a package in an unusual location or unknown people or vehicles loitering around plant entrances.

International travel curtailed

Chrysler Special Security Operations issued a travel advisory suspending all international business travel with the exception of brand-name drug whose patent has expired. A generic drug is sold under a common or "generic" name for that drug, not the brand name. Generics often become available for sale shortly after the patent on the brand-name product expires. And generic drugs usually cost less than brand-name drugs, yet work just as well.

There are more than 200 manufacturers of generic drugs in the United States. Some companies make only generic drugs while other companies make generic drugs.

If you have a specific question about your prescription, ask your pharmacist. In about two out of three cases, when a generic drug is available, the pharmacist will dispense a generic drug rather than a brand-name drug. This is because generic drugs cost less and save patients money, and they usually achieve the same medical results.

If you're concerned about the safety of your generic product, ask your pharmacist. Pharmacists receive bulletins from the

Remember, if you have a prescription that you are supposed to take until it is gone, do not stop taking it unless you have checked with your physician or pharmacist.

If your doctor determines it is medically necessary for you to receive a brand-name drug, he or she will write "DAW" (dispense as written) on the prescription. If your doctor does not specify DAW, and you request the brand-name drug from the pharmacist, you will be responsible for the difference in cost.

Market share ceiling sought

continued from page 1

increase in Japanese U.S. transplant production in recent years," Iacocca said.

"With their U.S. transplant factories producing 1.5 million units annually and growing, and with Japan's market share in the United States at 30 percent and growing, now would be an appropriate time for Japan to agree to a total market share restraint that would include both transplant and imported units.

"This approach would allow continued growth in U.S. tra plant operations while Japan built-up imports, which cont no U.S. added value and supp no U.S. manufacturing jc would decline," Iacocca said.

Following Japan's annour ment on import restraints, 1 members of Congress release letter they sent to Japan's Pri Minister Toshiki Kaifu expre ing disappointment in Japa response to the Gulf crisis a urging "meaningful" restrai on auto exports. Ford Chairn Harold Polling also called Japan to roll back its exports.

Platform team concept expands; general managers named

continued from page 1

tinues as Vice President—Product Strategy and Regulatory Affairs.

- Francois Castaing has been appointed General Manager—Jeep/Truck Operations and continues as Vice President—Vehicle Engineering.
- Thomas Gale has been appointed General Manager—Minivan Operations and continues as Vice President—Product Design.
- Thomas Stallkamp has been appointed General Manager—Large Car Operations and continues as Vice President—Procurement and Supply.

Chrysler Chairman Lee Iacocca said, "The platform team concept we launched for the development of the new LH program is succeeding beyond our most optimistic expectations.

"The cross-functional teamwork idea is working so well that we decided to apply it to all of our product lines and broaden it to include not only the product development process, but also the important market and consumer inputs necessary to bring world-class vehicles to market.

"These new general managers," Iacocca added, "will be positioned to pull it all together because that's what it's going to take to compete in the '90s—great products totally in sync with our customers."

The new Business Operations activities will be organized on a cross-functional team basis and will incorporate Chrysler's existing platform team functions, expanded to include representatives from planning, sales, marketing, service and consumer activities.

Each of the team managers will have a general product manager:

- Edwin Brust has been appointed General Product Manager—Large Car.
- Joseph Caddell has been appointed General Product Manager—Small Car.
- James Hossack has been appointed General Product Manager—Minivan.
- P. Jeffrey Trimmer has been appointed General Product Manager—Jeep/Truck.

Chrysler also announced that Thomas Denomme has been named Executive Vice President—Corporate Staff Group. He had been Vice President—Corporate Planning and External Affairs.

Effective with this change, Anthony St. John, Vice President—Employee Relations, and Gino Giocondi, Vice President—Quality and Productivity, will now report to Denomme. They had reported to Lutz.

Denomme's responsibilities include Strategic Planning, Communications, Civic and Government Affairs, and Washington Affairs, in addition to Employee Relations and Quality and Productivity.

Concurrently, Corporate Economist Donald Hilty is reassigned from Denomme to Chrysler Corporation Vice Chairman R. Steve Miller Jr.

Times

Chrysler Times is published by Communication Programs, a department of Chrysler Corporate Communications, for all Chrysler employees, retirees and their familie Comments or questions should be addressed to:

CHRYSLER TIMES
Allan Nahajewski, Editor
Pamela M. Gross, Associate Editor
CIMS 416-13-06
Highland Park, MI 48288-1919

News updates are available daily through the *Chrysler Employee New Daily* system. Call tieline 876-2345 or, via computer, touch PF1 on the InfoCenter Main Menu.

Chrysler Times is printed on recyclable paper.

Deposition of Francois J. Castaing
14 June 2011
Exhibit Three

In the matter of :

KLINE versus VICTORIA MORGAN-ALCALA, CARLOS ALCALA, NATALIE RAWLS, DAIMLERCHRYSLER CORPORATION (AKA CHRYSLER CORPORATION) LOMAN AUTO GROUP, CHRYSLER GROUP LLC, et al.

CHRYSLER CORPORATION

Lee A Iacocca
Chairman of the Board
Chief Executive Officer

September 5, 1991

To: All Chrysler Corporation Employees and Dealers

There has been a lot of speculation inside and outside the Company recently regarding my plans for the future. You deserve to know those plans because you have a lot invested in this Company.

After consulting with our Board of Directors today, I have agreed to remain in my present position until December 31, 1992. It is my intention to step down on that date. The Board has already begun discussions on the selection of my successor. We're fortunate at Chrysler to have a strong management team with both depth and diversity that will assure an orderly transition.

As I said at our dealer meeting in Denver last month, I'm looking forward to these next 16 months, perhaps more than to any period in my career. We will be launching the new product lines resulting from our combined efforts over the past several years, and I look forward to sharing that excitement with you.

We still have a lot of work to do. I plan to give it my all and I'm counting on each of you to do the same.

Sincerely,

Lee Iacocca

Δ π EXHIBIT 3
Deponent Castaing
Date 6-14-11 Rptr. JAD
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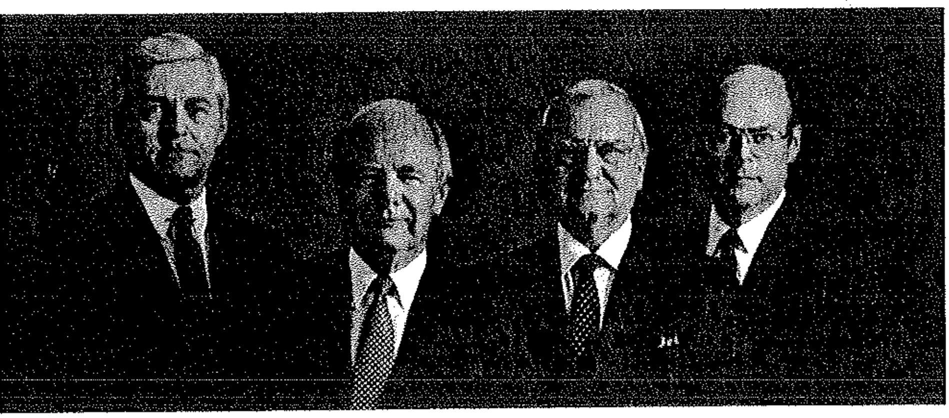
Chrysler Corporation
12000 Chrysler Drive
Highland Park MI 48288-1919

"We have the plan. And the people to make it work."

"When you come right down to it, a company is only as good as its people. I consider ours the best in the business. We've established two executive teams with one crucial responsibility: take Chrysler to an outright leadership position and keep us there.



From left: Bob Lutz, Ben Bidwell, Lee Iacocca, Steve Miller.

"Working with me on overall planning and strategy are Vice Chairman Steve Miller, Chrysler Motors Chairman Ben Bidwell and President Bob Lutz. I'll put them up against any top management team anywhere.

The innovators. From left: Dick Dauch, Tom Gale, Francois Castaing.

"The group responsible for making Chrysler the product and quality innovator of the future is a very special bunch of pros. They're young, but they're experienced. And they have the vision to make a difference. Executive Vice President Dick Dauch, Manufacturing; Vice Presidents Tom Gale, Product Design and Francois Castaing, Engineering. You'll be hearing plenty from them, and about them.

"But I'm not just talking about the guys with the big offices. It's the guts of the company... the men and women who put our cars and trucks together... that will make us everything we want to be. Just doing the job isn't enough for them. They're always looking for ways to do it better.

"In fact, we have some geniuses in our midst. Dozens of our employees have been granted U.S. patents for their contributions to automotive technology. Here are just a few.

"Howard Benford, Jerry Holbrook and Maurice Leising shared the 1990 Inventor Of The Year award for Ultradrive, the most advanced automatic transmission in the industry. It's the first time this honor has gone to an automotive product. Tom Sullivan is the brains behind our power memory seat and mirror control systems. Fred Miesterfield designed hardware to let computer chips talk to other computer chips. Ron Hormel put our electronics under one central control to improve reliability and performance.

"The extra effort made by so many of our employees means higher quality for our customers, and a more cost-effective end product for us.

"The people at our Chrysler-Plymouth, Dodge, Jeep and Eagle dealerships deserve special mention. Last year alone they took more than a half-million hours of specialized training to make sure our customers get exactly what they

Deposition of Francois J. Castaing
14 June 2011

Exhibit Four

In the matter of :

KLINE versus VICTORIA MORGAN-ALCALA, CARLOS ALCALA, NATALIE RAWLS, DAIMLERCHRYSLER CORPORATION (AKA CHRYSLER CORPORATION) LOMAN AUTO GROUP, CHRYSLER GROUP LLC, et al.

CHRYSLER MOTORS

Chrysler Motors Corporation

Δ π EXHIBIT 4
Deponent Castaing
Date 12-14-11 Rptr. [illegible]
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December 14, 1990

Dear Fellow Employee,

A year of continual progress and noteworthy accomplishments for the Vehicle Engineering organization is rapidly drawing to a close. I want each of you to know that I sincerely appreciate your efforts. I also want you to know that I'm aware that the successes we enjoyed resulted from your hard work, dedication to achieving excellence and positive "can do" attitude.

Traditionally this is the time of year we reflect on past achievements and establish goals and plans for the future. As I think of what we, as a team, accomplished last year, I am very proud and you should be also -- a few of the major accomplishments that come to mind...

- PQIP and the QIP process have taken hold and we are seeing tangible results. Our overall product quality continues to improve. Just look how much better our carry-over products are getting.

- The new T-115 was successfully launched on time.

- Our major product programs, the ZJ, LH, T300 and PL are all on time and moving smoothly through the development cycle.

- Supplier relations and partnerships continue to be strengthened. The Supplier Cost Reduction Program is a success, not only in achieving cost savings, but very importantly in upgrading our Engineering standards, while learning to trust each other.

- The platform team concept is succeeding and its success is recognized throughout the corporation -- other major organizations have embraced the concept and are organizing along similar lines.

- The automobile magazines wrote appreciative articles about our 1991 cars and trucks last Fall.

In retrospect, we have much to be proud of; however, we cannot rest on our laurels or slow the momentum.

As I'm sure you all know just by reading the newspapers, it is expected that the next year will be tough for the country, the industry and certainly our company. This realization should not frighten us because we have been through downturns before and have always emerged as a stronger company -- this time will be no exception.

A good way to stay focused on the task ahead of us is not to believe in rumors heard around the coffee machine; if you have a question or concern, ask your management for the straight story. Spreading of rumors is nothing but a waste of valuable time.

By the way, it's no secret that we did lose some engineering talent to our competition this past year. Interestingly, however, is the fact that several have approached us regarding the possibility of returning and some already have. So the point is, that although the grass may look greener elsewhere, that is not always the case. Please remember, we need each of you to continue our never-ending fight in a very, very competitive marketplace.

Teamwork and good communication should help all of us learn how to become comfortable with the daily reality: we have to do more, faster and with relatively less resources, for Chrysler to stand a chance to stay a strong, independent contender in the decade ahead.

Now is the time to relax and enjoy the holidays; however, during this holiday season, I'd also ask you to recommit yourself to "Being the Best". Remember the Customer is #1, and everything we do must have a positive bearing on customer satisfaction.

My thoughts and best wishes are with you and your families during the Holiday Season. I'm looking forward to working with you in 1991.

F. J. Castaing

François

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14 June 2011

Exhibit Five

In the matter of :

KLINE versus VICTORIA MORGAN-ALCALA, CARLOS ALCALA, NATALIE RAWLS, DAIMLERCHRYSLER CORPORATION (AKA CHRYSLER CORPORATION) LOMAN AUTO GROUP, CHRYSLER GROUP LLC, et al.

JEEP/TRUCK OPERATIONS

514-00-00
D. E. Dawkins
General Product Manager
Jeep/Truck Operations
Sec. N. Marvicsin 3-3016 / 3-8752

514-00-00
T. deBoer
Chief
Truck Program Management
Sec. R. Klein 3-2158 / 3-2316

D. C. MacDonald	3-2971
C. W. Ewing	3-2358
L. E. Hall	3-2381
J. L. Haubert	3-3379
G. F. Ingram	3-2441
M. A. Radanovich	3-3473
TBD	3-

514-00-00
G. A. House
Chief
Truck Product Planning
Sec. S. Murray 3-2331 / 3-2397

R. E. Burnham	3-2171
M. J. McGrane	3-3075
E. C. Pearson	3-3382
D. P. Tardella	3-3842
C. J. Hitt	3-3377
C. A. Chappell	3-3392
T. A. Kamrath *	3-3341

514-00-00
J. W. Hill
Chief
Jeep Program Management
Sec. M. Hintzke 3-2290 / 3-3580

J. A. Mellberg	3-2476
J. J. DeMars	3-3350
S. A. DeMay	3-3345
A. Wadoud	3-3465
E. L. Wojciechowski	3-3117

514-00-00
P. J. Dilworth
Chief
Jeep Product Planning
Sec. J. McHenry 3-8553 / 3-2475

L. A. Turner	3-2304
R. Ray	3-2479
M. W. Geiger	3-3099
R. C. LaPay	3-3781
TBD	3-

514-00-00
K. R. Nelson
Chief
Strategic Planning and
Special Programs
Sec. N. Takala 3-2015 / 3-2047

T. A. Simonsen	3-2722
K. E. Helfrich	3-3367

* Contract

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14 June 2011

Exhibit Six

In the matter of :

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USA TODAY Money

02/04/97 - 08:10 AM ET - Click reload often for latest version

Test standards at the core of legal battle

Chrysler takes on the government this week in a federal court showdown over safety tests.

In an unprecedented civil case, the government is suing to force **Chrysler** to recall 91,000 **Chrysler** Cirrus and Dodge Stratus sedans after a Cirrus model failed a test of seat-belt anchor strength in July 1995. No other automaker has gone to court to challenge the government's crash test results. **Chrysler** has refused to recall the cars, arguing that the cars are safe and that the government tested the seat belts improperly.

A judge will hear arguments Tuesday in U.S. District Court in the District of Columbia.

"Should (the government) prevail here, there is no limit to the damage that could be done to the orderly production of motor vehicles in the United States," lawyers for the American Automobile Manufacturers Association, the Big Three automakers' trade group, wrote in a brief supporting **Chrysler**.

The automakers fear that if the government wins the lawsuit, they will be subject to testing that is at the whim of regulators, rather than based on more objective criteria.

A philosophical battle

This public fight is part of a larger philosophical battle that has ensnared **Chrysler** and Clinton administration safety regulators for more than three years. The National Highway Traffic Safety Administration (NHTSA), a U.S. Department of Transportation agency, writes and enforces rules governing the safety of all new cars and trucks sold in this country. It wants carmakers to meet its safety tests by healthy margins, not just legal minimums.

The agency says that if automakers did not treat their standards as minimums, cars and trucks would not fail the tests.

Chrysler disagrees. "The law says all you have to do is pass," **Chrysler** safety director Dale Dawkins said in an interview before he retired in December. "You build a margin in single vehicle tests to accommodate variations in testing. We do it so we pass, not because of some desire to exceed the standards."

The safety agency's chief, Ricardo Martinez, an emergency trauma surgeon, says the standards are designed to prevent serious internal injuries. "There's a disturbing trend for car companies to treat standards in legal and technical terms rather than in terms of injuries and deaths," he says about **Chrysler**.

The push begins

The agency stepped up public efforts to get the carmakers to pass crash tests by higher margins after Clinton's election in 1992. Martinez was confirmed in 1993.

The agency's philosophy: It would be "good corporate citizenship" to go beyond minimum standards.

Agency representatives say that it would be difficult to get higher standards approved: The higher expenses to automakers to meet higher standards would have to be justified in a tough cost-benefit analysis.

So Martinez is trying to work with existing standards. He contends that automakers - particularly the Big Three - don't pay enough attention to injury prevention and worry too much about liability costs.

But the automakers complain that complying with regulations is among their biggest costs.

Chrysler insists that its vehicles are safe in real driving conditions, no matter what contortions the vehicles are put through to pass government crash tests. And the company asserts that it has not had an unusual number of recalls.

While executives at other automakers support **Chrysler** in Tuesday's legal dispute, they question **Chrysler**'s approach. Even if you win such battles, they say, squabbles over safety could scare consumers away from your cars and trucks.

"It's just not in (a company's) interest to go to court," says Thomas Gottschalk, GM's general counsel. "There's clearly something for both sides in coming up with a reasonable basis for resolving the matter."

Chrysler agrees that there is a risk but is willing to take the chance. "The downside in disagreeing with the government is that they have all the credibility," says Lewis Goldfarb, **Chrysler**'s assistant general counsel.

Chrysler hopes to prove that the agency went too far when it tested the seat belt anchors in the **Chrysler** Cirrus. "This is not about safety, it's about changing a test procedure," says **Chrysler** spokesman Jason Vines. "We're not willing to compromise on that."

The '95 test

At issue: During a government strength test in 1995, the anchors securing the rear seat belts in a '95 **Chrysler** Cirrus pulled out of the floor. NHTSA ordered **Chrysler** to recall 91,000 Cirrus and Dodge Stratus models and strengthen the seat belt anchors. **Chrysler** refused, contending that NHTSA tested the belts improperly, in a way not spelled out in federal regulations.

The agency argues that it needs discretion in how it tests the belts, and that its test on the Cirrus more closely resembled real-world conditions. If it loses on this issue, it will simply change the standard so it can test any way it wants.

While a recall of just 91,000 **Chrysler** Cirrus/Dodge Stratus could avoid the negative publicity of a court trial, the automaker says it has no alternative. "There will be some perception that, 'Hey, they're talking about seat belts - wait a minute, maybe they're not safe,' " Vines says. "But there's not one case or customer complaint or accident."

Without real-world evidence of a safety problem, Vines says, **Chrysler** doesn't think there is anything to negotiate with the government.

But the agency says it shouldn't have to wait for someone to get hurt or killed before it can get **Chrysler** to strengthen the anchor. The test was designed to show what would happen in a crash, the agency says, and the belt failed. And besides, these are relatively new cars. There aren't very many on the road, and it usually takes awhile for complaints to start rolling into the government's hot line.

NHTSA officials say the test failures occur because **Chrysler** has not done enough testing on the steady stream of new vehicles it has introduced since 1992. The tests are designed to certify that cars and trucks meet the minimum safety standards required for sale in the USA.

Chrysler, regulators at odds

This week's court battle is just one of many clashes between **Chrysler** and the safety regulators:

- **Chrysler** is the target of 29% of NHTSA's active safety defect investigations, even though the automaker holds only 16% of the U.S. car and light-truck market. For instance, NHTSA currently is investigating four complaints about **Chrysler**'s top-selling minivans, including reports of seat-belt buckles that break, fuel tanks that leak and side doors that unlatch.

In 1995, NHTSA, responding to complaints from safety advocates and consumers, prompted **Chrysler** to voluntarily recall 4.5 million minivans because the vans' rear latches could pop open in crashes - a problem blamed for at least 28 deaths.

- NHTSA records show that **Chrysler** has failed more key crash tests the past few years than any other automaker. Four of 54 **Chrysler** models tested since 1992 have failed routine safety "compliance" tests of seat belts, air bags and fuel tanks.

Since 1992, one of 55 General Motors models has failed the same tests, and no Ford Motor model has. The 1994 BMW 325i and 318i failed seat belt and air bag protection tests in 1993 - the German car's stiff steering column didn't protect the test dummy from enough of the test crash forces. No other automaker has failed more than one of those compliance tests since 1992.

Dawkins says there is nothing wrong with **Chrysler**'s record. He says in most cases **Chrysler** cars passed on a retest. A test failure that is followed by a pass should "not be defined as a noncompliance." But the government disagrees and still considers it as a test failure in public records even if the requirement was met on a retest.

A 20-yard field goal

NHTSA administrator Martinez compares compliance tests to "a 20-yard field goal: They're easier to make than miss."

Safety officials say they have been surprised by **Chrysler**'s response to the disputed tests. For instance, General Motors quickly recalled its S10 pickup after the compact truck failed a compliance test in 1994; BMW did the same with its 3-series models. **Chrysler** has followed just one of its four failures with a recall. Instead, it has demanded retests and looked for ways to pass on technicalities.

Two years ago, the Dodge Ram van failed a routine compliance test. **Chrysler** replaced the Hybrid III crash-test dummy - used by all major automakers to see how well a vehicle's safety equipment protects people in 30-mph crashes - with an older, less precise Hybrid II model. On the second try, the Ram van passed the test. NHTSA subsequently tightened its rules.

In another case, NHTSA contends the 1990 Dodge Ram pickup failed a compliance test when its fuel tank filler hose ruptured and spilled too much gasoline. The model tested did not have a rear bumper, which was one of the ways **Chrysler** advertised and sold the truck. Many truck buyers put on accessory bumpers for towing and other jobs. **Chrysler** had never tested the truck with bumpers off.

The safety agency slapped **Chrysler** with a civil penalty and told it to test the truck without bumpers from then on.

Four years later, the exact same thing happened. Tested without bumpers, the dramatically redesigned '94 Ram pickup failed for the same reason, NHTSA says. The agency ordered a recall and is now seeking even larger penalties. **Chrysler** says it had successfully tested a vehicle similar to the bumperless '94 Ram that the government tested. But they deferred to NHTSA and conducted the recall.

Chrysler says it has invested in safety. Vines boasts the company has such advanced computer models it can depend on computer simulations instead of expensive crash tests. But NHTSA officials believe overreliance on computers may have contributed to **Chrysler**'s recent failures. They say computer simulations are not yet accurate enough to predict exactly what would happen in a crash - or crash test.

Automakers and regulators believe **Chrysler**'s decision to challenge NHTSA can be traced to its feisty leaders - CEO Robert Eaton, Vice Chairman (and ex-Marine) Bob Lutz and Dawkins.

Eaton, in particular, has experience taking on the government over safety - and winning. As head of GM's Technical Center in the early '80s, he provided the technical expertise behind GM's 1984 court fight against NHTSA over allegedly faulty brakes in several GM "X-car" models. The agency took GM to court to force a recall of about 1.1 million cars. With Eaton's help, GM won.

Battle won, war lost

But the final outcome of the X-car fight could serve as a warning to **Chrysler**. GM had to stop selling the models: Bad publicity from the case helped ruin sales.

The experience, says GM general counsel Gottschalk, suggests that compromise is sometimes wiser than confrontation when it comes to safety. "Even though GM won the legal issues and the battle in the X-car case, we paid a very great price for having to engage in that type of very public dispute," Gottschalk says. "We appeared to be resisting the government on safety. Even if you think you are right, people begin to question your product - and there's plenty of other product around."

By Jayne O'Donnell, USA TODAY

- Cover story index

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- Go to Money front page
- Go to USA TODAY front page

USA TODAY NEWS • SPORTS • MONEY • LIFE • WEATHER • FEEDBACK • SEARCH • INDEX

Deposition of Francois J. Castaing
14 June 2011

Exhibit Seven

In the matter of :

KLINE versus VICTORIA MORGAN-ALCALA, CARLOS ALCALA, NATALIE RAWLS, DAIMLERCHRYSLER CORPORATION (AKA CHRYSLER CORPORATION) LOMAN AUTO GROUP, CHRYSLER GROUP LLC, et al.

"CONFIDENTIAL"

Inter Company Correspondence

	File Code		Date August 24, 1978	
Name & Department: R. M. Sinclair, Director, International Product Development	Division: Product Plan. & Design Office		Plant/Office: Chrysler Center	CIMS Number: 416-20-15
From—Name & Department: L. L. Baker, Manager, Automotive Safety	Division: Engineering Office		Plant/Office: Chrysler Center	CIMS Number: 418-12-34

Subject: Fuel System Design - Chrysler Passenger Cars And Trucks.

Pursuant to the discussions between Messrs. Vining, Jeffe, Sperlich and yourself with Mr. Mochida on August 22, the fuel system design for domestic passenger cars and trucks is summarized for Mr. Mochida's information.

Not only are the impact performance requirements of MVSS-301 pertinent to the design approach but the significant increase in the last few years in the numbers of product liability cases involving fuel system fires and the increase in the size of the awards by sympathetic juries has to be recognized. In the Ford Pinto case the NHTSA Office of Defects Investigation selected arbitrary performance criteria of minimal or no fuel leakage when the test car is impacted in the rear by a full size car at 35 mph as a basis for questioning the safety of a recall modification of the Pinto.

. Passenger Car

Fuel Tank Location

The front wheel drive configuration in Chrysler's Omni and Horizon allowed the fuel tank to be located beneath the rear seat. This location provides the protection of all of the structure behind the rear wheels--as well as the rear wheels themselves--to protect the tank from being damaged in a collision. This same location will be used in the new 1981 K-Body cars which will also have a front wheel drive.

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Deponent Castaing
Date 6-14-11 Rptr. [illegible]
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The rear wheel drive H-Body scheduled for introduction in 1983 will have the fuel tank located over the rear axle and beneath the floor pan.

The question of whether M, R or J-Body cars should be converted to tank over axle prior to their phase-out is a matter under intensive study at this time.

Filler Neck And Cap

As the fuel tank is moved to a more forward location, the fuel fill is moved to the side of the car. The fuel cap will be recessed below the body surface and a fuel fill door provided. The fuel filler neck is designed to break away from the car body with the fuel filler cap still in place.

In this design the filler cap and fill neck or fill tube remain with the tank to avoid separation and possible fuel leakage. This side fill is scheduled for J and M-Bodies in 1980 and the Y-car in 1981.

The fuel fill is less likely to be damaged in a sideswipe when located on the right side of the car. As new models are introduced, the fuel fill will be moved to the right side of the vehicle. This may also offer greater protection to drivers who run out of gasoline on the highway, since they will fill the tank on the side away from the traffic.

Structure

In 1979 through 1983, the M, R, and J model cars which have the fuel tank under the floor pan behind the rear wheels, structural reinforcement of the longitudinals on each side of the tank, shielding of any unfriendly surfaces adjacent to the tank, and the design of straps and hangers to limit undesired tank movement will be employed.

- Truck

Fuel Tank Location

The same principles regarding fuel tank location apply to truck design. It is important that these larger fuel tanks are not only shielded from damage in a collision but do not break away from the truck and thereby spread fuel onto the roadway. The approach used by Mitsubishi on the SP-27 of locating the fuel tank ahead of the rear wheels appears to provide good protection for the tank.

The front wheel drive T-115 to be introduced in 1982 will have the fuel tank ahead of the rear wheels and under the rear seat. However, in rear wheel drive trucks there is no clearance over the axle for fuel tank installation and in many cases there is insufficient space ahead of the axle for fuel tanks of the desired capacity.

Chrysler is investigating fuel tank relocation ahead of the rear wheels for vans and multi-purpose vehicles, but present plans for pickups through 1983 and for MPV's and vans through 1985 have the fuel tank located behind the rear wheels. In vehicles both with and without bumpers there is a concern with vertical height differences that create a mismatch with passenger car bumpers. Where fuel tank location behind the rear axle is all that is feasible, a protective impact deflection structure may have to be provided whether or not a bumper is provided. An investigation whether to relocate the fuel tank or to provide impact deflecting structures is presently underway.

Fill Neck And Cap

All trucks and vans have side fill. The sweptline pickup truck (DW 1-3) and multi-purpose vehicles (AD-1 & AW-1) will have a recessed fill cap and fuel filler door beginning in 1981.

L. L. Baker

Deposition of Francois J. Castaing
14 June 2011

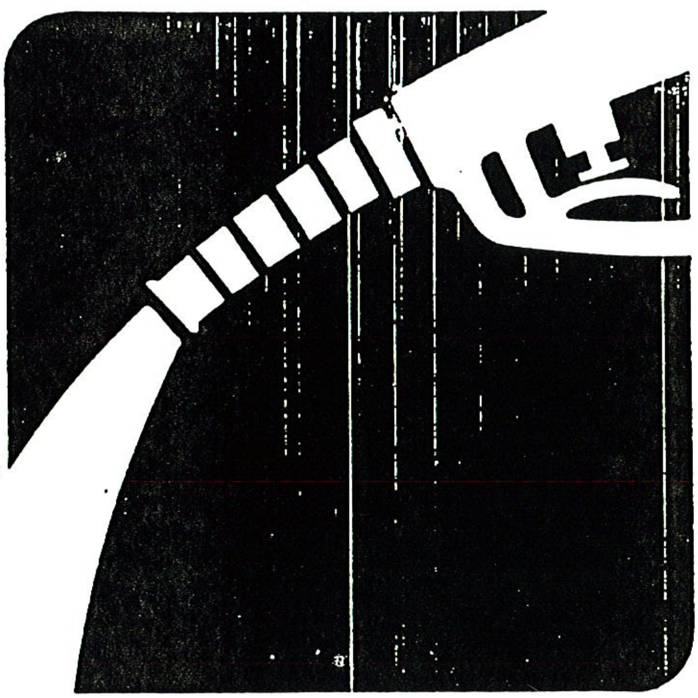
Exhibit Eight

In the matter of :

KLINE versus VICTORIA MORGAN-ALCALA, CARLOS ALCALA, NATALIE RAWLS, DAIMLERCHRYSLER CORPORATION (AKA CHRYSLER CORPORATION) LOMAN AUTO GROUP, CHRYSLER GROUP LLC, et al.

Fuel Supply Systems Design Guidelines

CHRYSLER
CORPORATION



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Request #3
[Fuel Supply Systems Design Guidelines]

Fuel Supply System Design Guidelines

The following design guidelines for fuel supply system components will ensure that the resultant system wi

a. safely supply and store fuel.
b. be a weight and cost effective design.
c. have ease of manufacture.
d. provide for easy service.
e. comply with Federal impact regulations FMVSS 581 & 301.
f. comply with Federal and state emission standards.
g. give customer satisfaction.
h. reduce warranty.
i. be corrosion resistant.

These guidelines apply only to fuel supply systems designed in steel. As the use of lighter and more cost effic materials is developed, these guidelines will be updated accordingly.

The guidelines are considered under the following headings with safety being a primary concern in all case

1. Fuel Tank
   - A. Basic configuration
   - B. Packaging clearances
   - C. Detail Design and Performance

2. Tank Attachments

3. Filler Tubes
   - A. Basic configuration
   - B. Packaging clearances
   - C. Detail Design and Performance

4. Filler Caps

5. Fuel and Vapor Tubes and Hoses
   - A. Basic configuration
   - B. Packaging clearances
   - C. Detail Design and Performance

6. Sending Unit

7. Fuel Gage

8. Venting and Temperatures

9. Government Safety Standards

For any items or considerations not covered in these guidelines, please consult with the Fuel Supply Sy Engineering Dept.

1. FUEL TANK

A. Basic Configuration

1. The capacity of the tank should give a driving range of 300 miles (483 kilometers), determined by the anticipated fuel economy of the base engine, as evaluated by Performance and Development Dept.

2. The tank should be located in a manner that avoids known impact areas and provides isolation from the passenger compartment. The Fuel Supply Dept. is to be consulted during advance fuel tank packaging studies.

3. The shape of the tank should tend to that of a cube, to minimize the weight of the tank and support system.

4. The tank should have parallel sides to simplify seam welding.

5. The plan view and cross sections of the tank should be symmetrical about its axes to minimize fuel gage inaccuracies.

6. Longitudinal and lateral restraints should be provided by underbody shape to eliminate the need for strainers (e.g. L Body).

7. An integral fuel/vapor separator and roll over valve should be located in the top center of the tank eliminating the need for fully domed tanks. It is desirable to have at least 1.5 inches between the liquid level and vent orifice for carryover reduction.

8. The sending unit should be located in the top stamping of the tank, with a sump effect provided for the float ar pickup in the bottom stamping to i prove gage accuracy.

9. The sending unit should be capable being serviced without removal of t tank.

10. The tank should be serviced withc removal of adjacent components.

11. The design of the fuel tank and fu supply system should not be co promised for bumper or platfo hitches. It is the responsibility of t Hitch-Releasing Dept. to insure th the performance of the fuel system. defined in these guidelines, not be i paired.

12. No offset flanges—see fig. 1.1.

13. Tank flanges, formations and re forcements should be configured as not to entrap corrosive agents.

B. Packaging Clearances

1. <u>Ground clearance</u>—The minim fuel tank clearance to ground is 3 (76 mm) measured by design L under dynamic full jounce metal metal (includes tire deflections as c culated for the dynamic tire load conditions of the partic vehicle).—see fig. 1.2.

2. <u>Departure Line</u>

   a. Tank Rear of Axle.

   0.25" (6.4 mm) clearance must maintained between the tank and parture line determined by a tang constructed between the botton

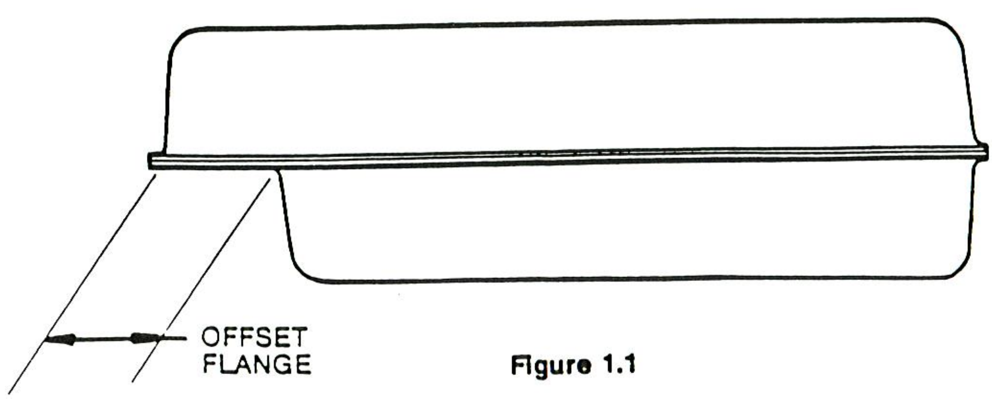

Figure 1.1

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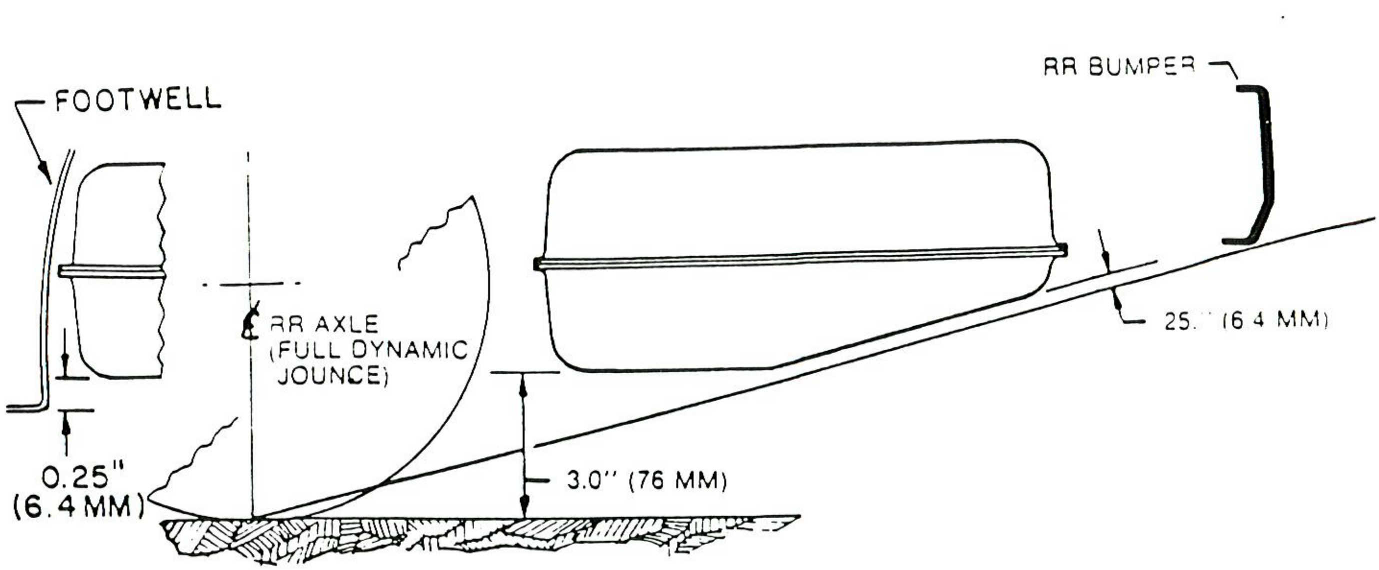

Figure 1.2

the tire centerline at full jounce and the bottom edge of the bumper, tie down skid plates or structurally sound license plate bracket.—see fig. 1.2.

✓ b. Tank Ahead of Axle.

The tank should not fall below a horizontal line drawn 0.25" (6.4 mm) above the tangent to the rear seat foot well or other nearly leading structural member.—see fig. 1.2.

3. Spring Clearance—The minimum clearance to the tank flange is 2" (50.8 mm) static and 0.75" (19.1 mm) under dynamic sway deflection.—see fig. 1.3.

4. Rail Clearance—A minimum of 2.0" (50.8 mm) clearance between the fuel tank and underbody rail.—see fig. 1.3.

5. Exhaust Clearance—A minimum o 1.5" (38.1 mm) between exhaust com ponent and tank, and 1.0" (25.5 mm to tank flange.—see fig. 1.3.

✓ 6. Axle, Bumper and Shock Absorber—This clearance to be determined by a combination of Advanced Body De sign crush analysis and actual mul vehicle FMVSS 301 rear impact. N contact should occur between thes components and the tank during th impact event. All components *mus* present a smooth and friendly surfac to the tank (axle vent, brake tee, shoc plate, bumper, etc.).

7. Shock and Spring Shackle Access—Tank must permit service of shock a sorber and spring shackle witho folding tank flanges.

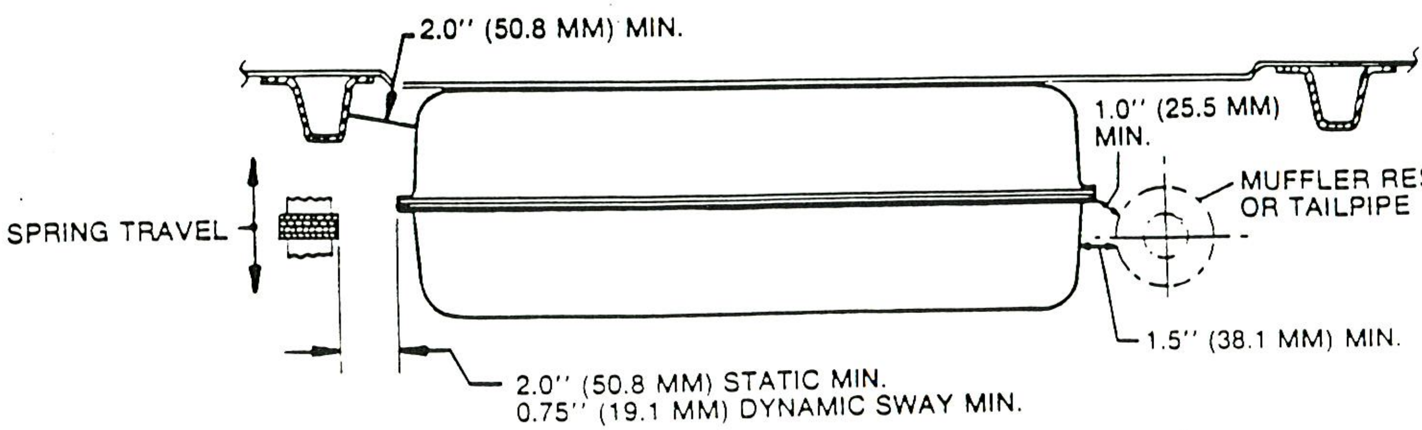

Figure 1.3

8. Shipping Tie Down Provision—A minimum of 0.5'' (12.7 mm) clearance must be maintained between body tie down provisions and the tank (this includes removable shackles).

C. Detail Design and Performance

1. Tank Capacity—The usable capacity of the tank is determined as follows:

   With tip angles of 16° fore and aft and 14° side to side the fuel level should not be higher than the venting point of the roll over valve. The volume below the limiting, tip angle surface represents: (unusable fuel + usable fuel) × (1 + thermal expansion) where:

   unusable fuel = 0.3 gallons (1.26l)

   thermal expansion = 0.027 (ΔT = 40°F)

   Hence the usable fuel capacity of a given tank and roll over valve configuration can be determined.

2. Body Tolerances

   a. ± 0.06'' (1.5 mm) for locating any one floor pan strainer to the floor pan centerline.

   b. ± 0.06'' (1.5 mm) lateral tolerance between one floor pan strainer to the other.

   c. ± 0.06'' (1.5 mm) longitudinal tolerance between strainers.

3. Tank Location—Lateral and longitudinal location to be provided by body formations (such as seat formations in L Body). For tanks located by strainers:

   Lateral—location provided by tank locating off one strainer permitting the other to float.

   Longitudinal—locate off strainer at the front and strap at the rear.

4. Design line to line clearance between tank and floor pan or floor pan beads. If insulator pad is used, allow for 0.05'' (1.3 mm) pad thickness (No pad is to be used unless mandated by Sound Lab).

5. Flange bend radius to be 0.08'' (2.0 mm) minimum. See fig. 1.4.

6. Flanges should not be folded, but where required, the transition from fold to normal will be 1.5'' (38.1 mm). In general, all folds are to be in downward direction (see fig. 1.4). Folds at

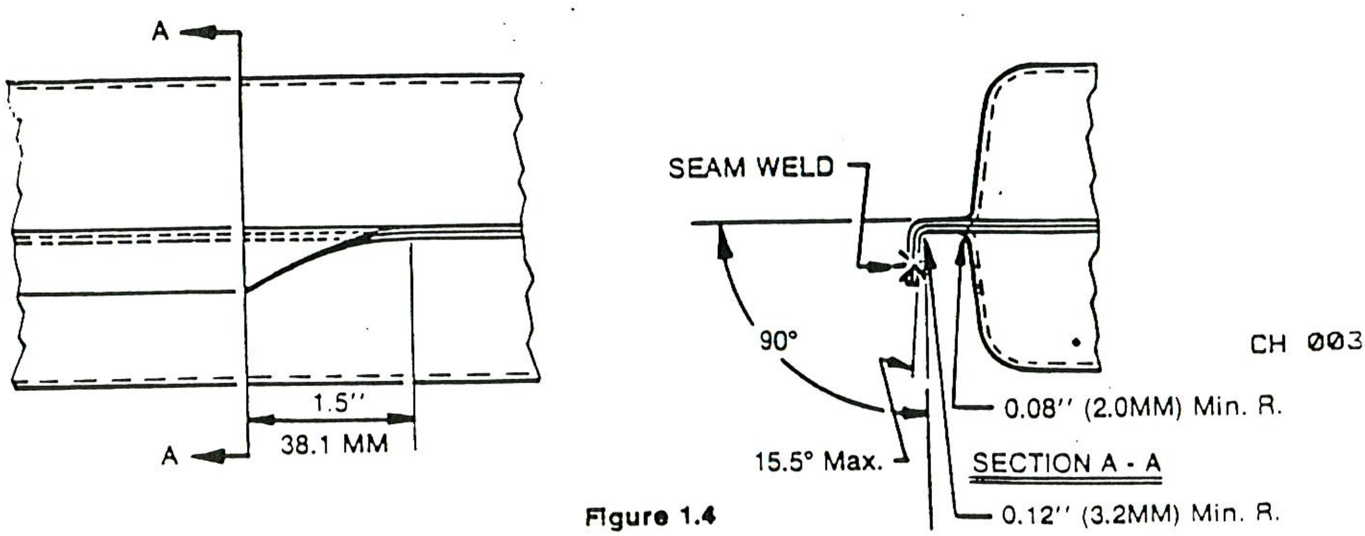

Figure 1.4

the support strap locations may be upwards if this provides the most friendly bearing surface. Maximum bend to be 90° with 15° tolerance. Fold radius to be 0.12'' (3.2 mm) minimum.

7. Location of seam welds.

a. With fold—to be located outside of fold—see fig. 1.4.

b. Without fold—to be located .025'' (6.4 mm) from wall of tank (ref. P.S.-1759).

8. All manufacturing pre-seam weld spot welds must be located outside of seam weld path.

9. Ribs

a. Ribs will be at least 0.25'' (6.4 mm) deep.

b. Rib neutral axis should be at half rib depth.

c. Rib transition to normal surface should occur on vertical tank wall within 0.25'' (6.4 mm) from flange. Round end rib fade out must not be used. See fig. 1.5 for correct fade out. Rib character to be accurate in A-1 model.

d. Rib configuration to be agreed to by Stamping Division.

10. Minimum & Maximum Material Thickness

To be quoted on drawing with the minimum resulting from combined testing of:

a. PV (Pressure Vacuum)

500 cycles at pressure limits of cap followed by 2000 cycles at 60% of pressure limits. (P.S. 1764)

b. Shake

Testing to PS1764.

c. Impact

FMVSS 301 impact testing.

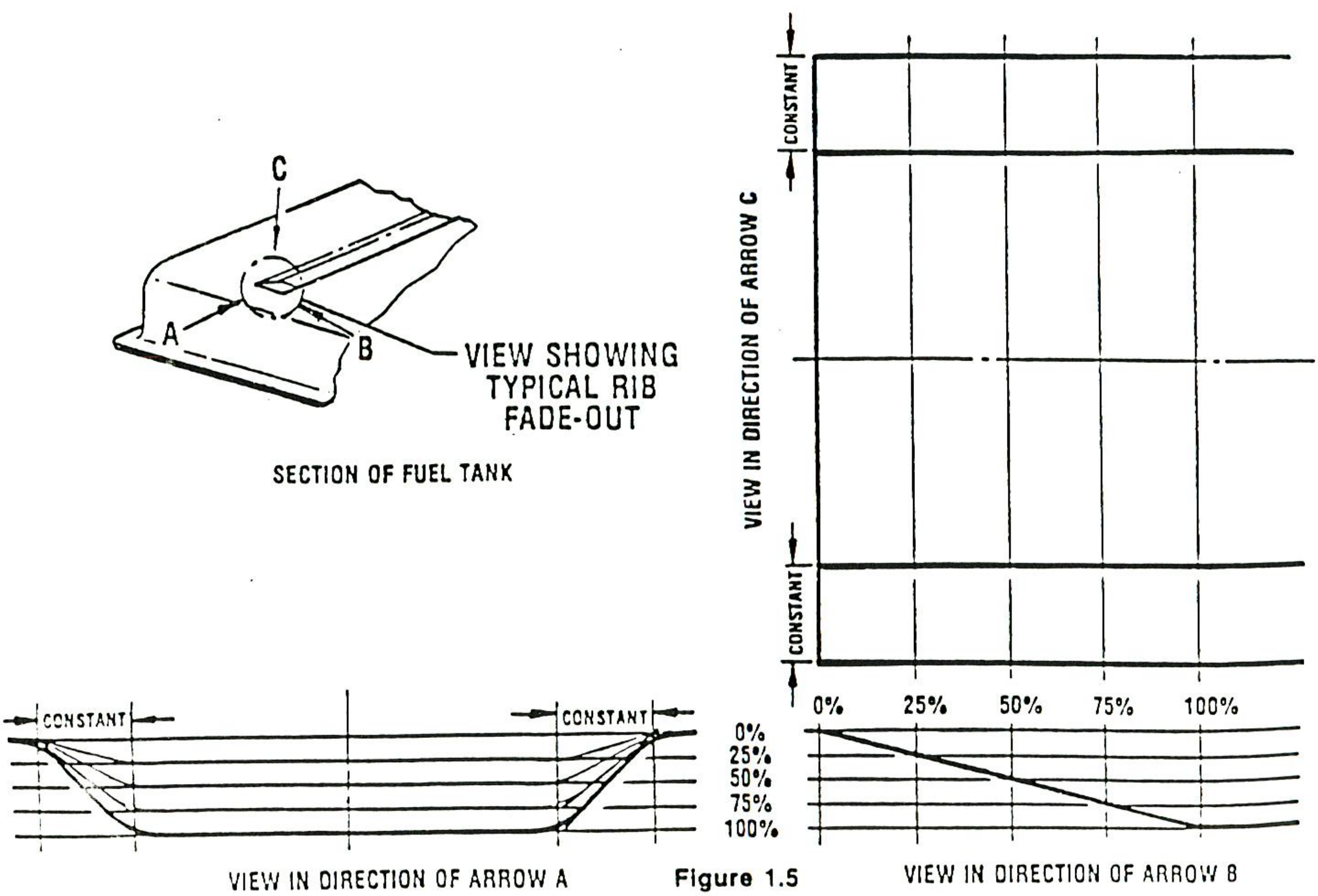

Figure 1.5

d. P.G. (Proving Ground)

50,000 miles (80 000 km) of general endurance testing, or 25,000 miles (40 000 km) of accelerated endurance testing.

11. Manufactured tanks to be tested for leaks etc., to PS1764.

12. Date codes will be stamped in appropriate size characters on bottom surface of stamping. Sharp corners are to be avoided.

13. Filler tube openings may require reinforcing if determined by impact testing.

2. TANK ATTACHMENTS

1. The straps are to be equispaced about the longitudinal centerline of the tank to equalize strap loads under operating and impact conditions.

2. Two identical straps are to be used.

3. The strap T-slot end is folded for double thickness.

4. The T-slot end will be the rear attachment unless otherwise agreed with SAD.

5. The strap bolted end is to be folded for double thickness.

6. Developed strap length will be determined by laboratory fitting on Program cars. Preliminary developed lengths will be determined by design.

7. Functional gaging to be called out detail drawing to check strap lengths.

8. If required, rolled edges should have a cross section as shown in fig. 2.

9. With positive wire connection for sending unit ground circuit, material may be either terne or galvanized for corrosion protection. Straps to be terne if no positive ground circuit used.

10. Material thickness will be determined as for tanks in section 1.C.10.

11. Straps should shield openings at the front of strainers to minimize corrosion.

12. Between the tank and the underbody attachments, the strap should be perpendicular to the weld flange of the tank.

3. FILLER TUBE

A. Basic Configuration

1. Preferred location is right side of vehicle with provisions to avoid separation of the tube from tank during impact.

2. Design layout should assume 2" (50.8 mm) O.D. tube.

3. Filler tube should enter the center of a side of the tank to minimize filling variations.

4. Filler tube to determine fuel level without external vent.

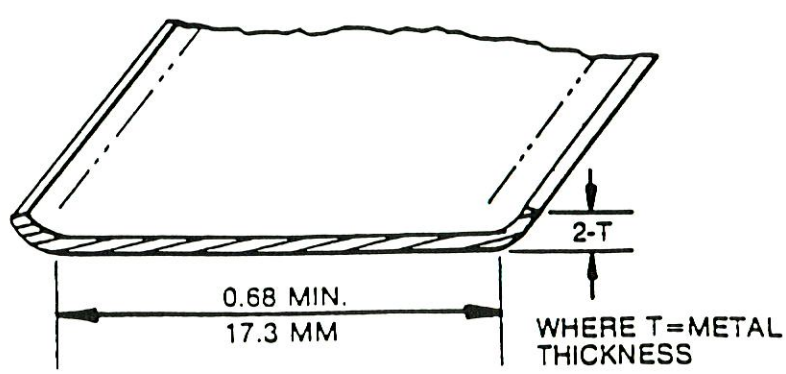

Figure 2

CH 003

5. Filler tube should be straight. If bends must be employed to facilitate packaging, all bends should be in one plane, if possible.

6. Must accommodate requirements of California vapor recovery for both leaded and unleaded filler tubes.

7. To be serviceable without removal of tank or other components.

8. Accept fill with 1 gallon (3.8 l) gas can. See layout 7730-36F-SK4567.

B. Packaging Clearances

1. Nominal clearance to fixed body components 0.5'' (12.7 mm).

2. If tube passes through tire wheelhouse, minimum tire clearance should be 3.0'' (76.2 mm) at full jounce.

3. If filler tube breakaway housing is used and it is located within wheelhouse, filler tube housing drain must be located away from radial wheel splash and hot exhaust components. Care should be taken in locating drain hole to assure that gasoline drainage does not attack sealing areas of lower wheelhouse.

4. Minimum clearance to spring 0.75'' (19.1 mm) dynamic roll and 2.0'' (50.8 mm) static full jounce.

5. Filler tube tank grommet must be 5.0'' (127.00 mm) from exhaust.

6. For rear fills, fully stroked bumper components to be 0.25'' (6.4 mm) from filler tube and present a smooth surface.

7. Fasteners are to be pointed away from filler tube. See design standard 31.17.

8. All surrounding components are to present a smooth friendly surface.

C. Detail Design and Performance

1. Minimum centerline bend radius should be 5.0'' (127.0 mm) to permit less costly press rather than mandril bends.

2. Minimum length of straight tube beween bend tangents to be equal to tw tube diameters.

3. Baffling or vent tube to permit filling 15 g.p.m. (56.9 l) without spray bac spit back, or premature shut off is ou lined in Fuel Supply Dept. laborato procedure.

4. Filler tube must accommodate a sembly plant filling process.

5. For impact considerations, the fil tube must:—

   a. Penetrate grommet by at least 2.7 (69.9 mm).

   b. The filler tube grommet sealing zo of the filler tube is to be sized to with 0.015'' of the nominal tube diame and be smooth without discontinu in an area of ± 2.0'' (50.8 mm) of t designed seal location.

   c. The surface of the filler tube wit two inches of the grommet is to be f of underbody sealer.

6. For corrosion purposes side fill tub must be lead dipped. Rear fill tub may be lead dipped or terne st material.

7. Leaded fuel restrictor to comply v the Federal requirement of prevent insertion of leaded filler nozzle restricting the amount of leaded that would be added, if attempted 700 cc.

8. Restrictor to pass life cycle of 2. insertions of unleaded nozzle.

9. Maximum angularity of filler tub grommet to be 10°.

10. When the filler tube is articulate the tank grommet, it must not com the tank grommet, it must not com contact with any part of the sen unit. To accommodate asser techniques it may be necessary to foam tube stops. Beads as asse aids are to be avoided.

11. Compliance with the California v recovery standard is establishe design. Guidelines for conform are shown on layouts:—

7730-36F-SK4507
7730-36F-SK4508

Standard nozzle guidelines are shown on layout 7730-36F-SK4567.

12. The filler tube should enter the fuel tank at a downward angle under all loading conditions.

4. FILLER CAPS

1. Relative to the sealing face of the filler tube the minimum clearances required to accommodate all threaded caps (both standard and locking) are shown on 7730-36F-SK4510.

2. Pressure settings are to be common to all caps to decrease emission families:—

   Vacuum— —10″ (254 mm) H_2O
   Pressure—Determined by the maximum static head of fuel that can be applied to the cap with the vehicle at any attitude plus a 3″ (76.2 mm) water margin of safety. This represents minimum cap setting. The maximum is to be determined by the PV test described in 1. C. 10a.

3. Caps to comply with PF6017.

4. Caps to comply with FMVSS 581 & 301 impact testing.

5. Durability to be established by 50,000 miles (80 000 km) general endurance running.

6. If subject to impact, caps are to retain their sealing capabilities.

7. No cap to have English wording without French equivalent having equal prominence.

5. FUEL AND VAPOR TUBES AND HOSES

A. Basic Configuration

1. Lines shall be one piece from the fuel tank to engine compartment and routed in a manner that eliminates the need of molded hoses.

2. For simplification and to avoid misbuilds, lines and hoses should be identical for all engine combinations in a particular car line. Where this is not possible the combinations of lines and hoses should be foolproofed by design.

3. For a car line with more than one wheel base, the low volume W.B. lines are to be color coded.

4. The fuel, return and vapor lines and hoses must not interfere with the removal and installation of serviceable parts.

5. Fuel line clips and hose clamps should be serviceable without removal of other components.

6. Clamps, clips and screws are to be standardized.

7. Armor Usage.

   No armor is to used on lines unless:—

   a. Determined by the Corrosion Laboratory to be necessary to prevent premature corrosion failures.

   b. Established by general endurance testing to minimize stone damage in critical areas.

   c. Required for protection of lines during impacts.

B. Packaging Clearances

1. In the engine compartment a minimum of 1.0″ clearance between the engine and the lines and hoses must be maintained during body drop.

2. All screws and clamps to have acceptable tool clearances. To be determined in cooperation with SAD on chassis and underbody mock-ups.

3. For impact considerations, no sharp objects are to be pointed at the fuel supply and return lines within 2.0″ (50.8 mm) (refer to drafting standard 31.17). Nor should they be located where they may be severed during impact.

4. Fuel hoses must clear exhaust components by 5'' (127 mm).

5. Fuel hoses to be routed with 4'' (102 mm) clearance to engine accessory drive belts.

C. **Detail Design and Performance**

1. For layout purposes provision should be made to bundle:—

   Fuel supply ⅜'' (9.5 mm) Dia.
   Fuel return ⅜'' (9.5 mm) Dia.
   Vapor ¼'' (6.4 mm) Dia.

   Desired usage is:—

   Fuel supply ⁵⁄₁₆'' (7.9 mm)
   Fuel return ¼'' (6.4 mm)
   Vapor ³⁄₁₆'' (4.7 mm)

   Larger sizes will only be used if dictated by applications such as EFM.

2. Tube material to be MS1806 steel (optional MS3235) with a wall thickness of 0.028'' (0.71 mm), lead alloy coated to PS954B and inspected for cleanliness to PS3930.

3. Bead formation and hose stop to PS1797. To minimize possibility of hose cutting during impact, no burrs are permitted.

4. Hose material to be rubber and fabric MSEA212.

5. Bend Radii

   a. Lines

   Only two radii per line diameter permissible.

Dia.	Radii at Centerline	Bend
³⁄₁₆'' (4.7 mm)	0.5'' (12.7 mm), 1.5'' (38.1 mm)	90° Maximum
¼'' (6.4 mm)	0.5'' (12.7 mm), 1.5'' (38.1 mm)	90° Maximum
⁵⁄₁₆'' (7.9 mm)	0.62'' (15.9 mm), 1.5'' (38.1 mm)	90° Maximum
⅜'' (9.5 mm)	0.75'' (19.1 mm), 1.5'' (38.1 mm)	90° Maximum

   b. Hoses

   To avoid hoses kinking, the minimum radius for hose routing is:—

Dia.	Minimum Radii at Centerline
³⁄₁₆'' (4.7 mm)	3'' (76.2 mm)
¼'' (6.4 mm)	3'' (76.2 mm)
⁵⁄₁₆'' (7.9 mm)	4'' (101.6 mm)
⅜'' (9.5 mm)	5'' (127.0 mm)

6. With the aid of SAD it must be determined if pre-bundled or single line installations are more economical. Compatible clipping will then be designed.

7. Hoses must be located so that a broken exhaust component will not result in failure from exhaust gas impingment.

✓ 8. Lines and hoses are to be routed to protect them from being cut by collapsing leaf springs.

6. SENDING UNITS

✓ 1. The sending unit should be located in top stamping of the tank or on a surface that is not in line with the axle bowl or shock absorber or where it is likely to be damaged during impact.

2. For overall accuracy the sending unit must have positive bottom reference.

3. The float is to be located as close to the center of the tank as possible to minimize gauge fluctuations during various vehicle maneuvers and loading conditions.

4. The output of the sending unit is to be linear relative to fuel capacity.

5. Sending units will have positive wire connection for the ground circuit.

6. Servicing of the sending unit should be accomplished without removal of the tank or other components.

7. The fuel filter must comply with MS3539 for standard units and PF6266 for EFM units. In both cases the filter must be capable of picking up all of the usable fuel, as defined in 1.C.1.

7. GAGE

1. Although every effort is made to make the combined output of the sending unit and gage linear, the graduations of the fuel gage are to truly reflect the actual fuel capacity.

2. The empty reserve is to be minimal so that its range is from zero to 10% of tank capacity.

3. The full reserve shall be that amount of fuel to always assure a full or beyond gage reading within the design limitation set forth in PF3865.

8. VENTING AND TEMPERATURES

1. A full tank must vent under the following conditions:—

   a. 16° fore and aft vehicle attitude

   b. 14° side to side vehicle attitude

   c. Δ T of 40°F combined with a. and b.

   d. The AMA cycle with zero carry over. (0.7 g acceleration and deceleration; 0.4 g cornering.)

2. Temperatures

   The following fuel supply system temperature goals exist for fuel levels in excess of a half tank. Fuel levels may raise the temperature goals of the tank surface and fuel another 20°F. Component relocation or shielding must be considered if these goals are exceeded.

INSTRUMENTATION DEFINITIONS FOR FUEL SYSTEM

Thermocouple Location	Long Term Goals		Short Term Goals	
	F	C	F	C
F/Tnk. Surface	150	65.6	160	71.1
F/Tnk Nrst Resonator	150	65.6	160	71.1
Fuel Temp. in F/Tnk.	130	54.4	140	60.0
Fuel Temp. at Axle Kickup	130	54.4	150	65.6
Fuel Temp. at F/Tnk. Outlet	130	54.4	150	65.6
Fuel Temp. TB/HS Int. U/Fnt. Ftw1	130	54.4	150	65.6
Fuel Line-rubber hose connections (all locations)	180	82.2	250	121
RR W/Well F/Line Clip Nrst. Exh.	150	65.6	150	65.6
F/Vapor Temp. at F/Tnk. Inl.	120	48.9	120	48.9
R/O Val. Extl. Surf.	250	121	300	149

9. GOVERNMENT SAFETY STANDARDS

1. FMVSS 581—Bumper Impact Standard

   All changes to the fuel supply components will be reviewed for compliance with the subject standard and confirming tests run where judged necessary.

2. FMVSS 301—Fuel Integrity Standard

   The Fuel Supply Department has the overall responsibility for meeting the subject standard. A 301 steering committee, chaired by the Fuel Supply Department, meets bi-weekly to review compliance status. This forum is used to evaluate changes to the vehicle for their possible effect on the standard and to arrange for any necessary testing, and/or changes.

   Note:
   IT IS INCUMBENT ON THE DEPTS. MAKING CHANGES TO ADVISE THE 301 STEERING COMMITTEE IF THEY FEEL THAT THE CHANGES MAY AFFECT COMPLIANCE WITH FMVSS 301

Deposition of Francois J. Castaing
14 June 2011

Exhibit Nine

In the matter of :

KLINE versus VICTORIA MORGAN-ALCALA, CARLOS ALCALA, NATALIE RAWLS, DAIMLERCHRYSLER CORPORATION (AKA CHRYSLER CORPORATION) LOMAN AUTO GROUP, CHRYSLER GROUP LLC, et al.

FUEL SYSTEMS & IMPACT

Ginny Fischbach
Manager, Truck Impact

Δ π EXHIBIT 9
Deponent Castaing
Date 6-14-11 Rptr. [illegible]
WWW.DEPOBOOK.COM

Estes
EXHIBIT NO. 1
5-26-05
M. MOORE

Lazarus
EXHIBIT NO. 10
5-26-05
M. MOORE

LAZERUS EXH. 10

Fuel Systems & Impact

I. Impact Department

A. Responsibility

B. Process

C. Relationship with Fuel Systems

II. FMVSS 301

A. Current Regulations

B. Proposed Regulations

III. Fuel System Design for Safety

A. Absolute vs Potential Failure

B. Design Considerations

C. Design Changes

IMPACT RESPONSIBILITIES

- Coordination of impact test plan
- All full vehicle impact testing
  - FMVSS 204, 208, 212, 219, 301, 303
- Overall responsibility for impact compliance
- Knowledge of current impact regulations

Pre-test Process

- Develop test plan
- Obtain "buy-in" from affected depts
- Order required vehicles
- Coordinate rebuilds or updates
- Fuel system purge & pressure check
- Work with test facility to assure valid, usable test

DC 05118

Post-test Process

- Verify all test data
- Schedule post test static roll
- Oversee vehicle teardown and inspection
- Review test film and data
- Coordinate modifications for future tests

Relationship with Fuel Systems

- Participation in impact development process
- Information needs to flow both ways
- Any design change must be communicated to Impact Department
- All test vehicles should be signed off for latest design level and updated if necessary

DC 05120

Test Vehicles

- <u>ALL</u> test vehicles need correct parts
- Limited number of test vehicles
- Tests/vehicles are expensive - to test outdated parts wastes corporate manpower and resources
- Earlier test of design will allow more time for modifications

Current FMVSS 301
Test Modes

- Frontal
  - 30 mph, perpendicular +/- 30 degrees
- Lateral
  - 20 mph, moving barrier
- Rear
  - 30 mph, moving barrier
- Static Rollover
  - 360 degree roll in 90 degree increments
  - 1-3 minutes to reach each increment
  - hold each increment for 5 minutes

DC 05122

Current FMVSS 301 Test Conditions

- Fuel tank filled to 90-95% of capacity
- Remainder of fuel system filled to normal operating level
- Two FMVSS 208 test dummies in front
- Fuel pump is running at time of impact
- Vehicle is loaded to UVW + luggage + dummies

DC 05123

Current FMVSS 301 Test Requirements

- GVWR 10,000 pounds or less
- Fuel spillage
  - Barrier crash
    - 1 oz (by weight) during impact motion
    - 5 oz in 5 minutes after motion stopped
  - Rollover
    - 5 oz first 5 minutes of each 90 degree increment
    - 1 oz during any 1 minute period

Proposed Legislation

- Current FMVSS 214 used in place of current lateral test
  - 33.5 mph
  - deformable, crab barrier
- 50 mph rear test
  - deformable FMVSS 214 barrier
- Rule making not expected until late 1997

Fuel System Design for Safety

- Absolute vs potential test failure
  - design for zero leakage
  - contact with unfriendly surface is unacceptable
  - any contact with tank accessories is unacceptable
  - pinching of fuel lines, especially with sharp edges should be avoided (metal lines are more forgiving)

Fuel System Design for Safety

- Test issues and post test inspection
  - check for secondary problem areas
  - be careful not to discount as "anomaly"
  - check for post test springback
  - inspect for any contact with the fuel system

Fuel System Design for Safety

- Design considerations
  - Carefully check fuel line and hose routing for pinch points and sharp surfaces
  - Relative motion of fuel system to body/frame
  - Fuel tanks will deform during impact
  - Shields may introduce new issues
  - Module must be tested at component level

DC 05128

Design Changes

- All changes are important
- Impact Department should be notified of any change <u>before</u> it is put into production
- NO CHANGE IS NEGLIGIBLE!

Summary

- Assure all test vehicles are built correctly
- Always do a thorough post test inspection
- Communicate, Communicate, Communicate

DC 05130

Deposition of Francois J. Castaing
14 June 2011

Exhibit Ten

In the matter of :

KLINE versus VICTORIA MORGAN-ALCALA, CARLOS ALCALA, NATALIE RAWLS, DAIMLERCHRYSLER CORPORATION (AKA CHRYSLER CORPORATION) LOMAN AUTO GROUP, CHRYSLER GROUP LLC, et al.

ENGINEERING

'85 DODGE ENGINEERING

Dodge safety features

The following safety features are standard equipment on all North American-built Dodges:

- Safety-Rim wheels
- Combination lap-shoulder belts for the driver and right-front passenger, and lap belts for all other passengers
- Seat belt reminder system
- Energy-absorbing steering column or steering wheel
- Dual braking system with separate brake-fluid reservoirs in the master cylinder
- Brake-fluid pressure-loss warning light (also serves as indicator when parking brake is applied)
- Hazard warning flasher system
- Turn signals with lane-change feature
- Electronic ignition
- Backup lights
- Energy-absorbing sun visors
- Front seat head restraints
- Energy-absorbing front seatbacks
- Inside and outside rearview mirrors
- Side marker lights and reflectors
- Seatback latches on folding front seats
- Fade-resistant front disc brakes
- Electric windshield washers and wipers
- Ignition and steering column lock
- Anti-theft trunk lock
- Headlamp and wiper circuit breakers with automatic reset
- "Key-left-in-ignition" warning
- Nonoverride door locks (except driver's door)
- Resilient window crank knobs
- Side door beams
- Interlocking door latches
- Recessed inside door release handles
- Rotary glove-box latch
- Reinforced windshield header and roof
- Glare-reduction measures for windshield wipers, instrument panel and steering wheel

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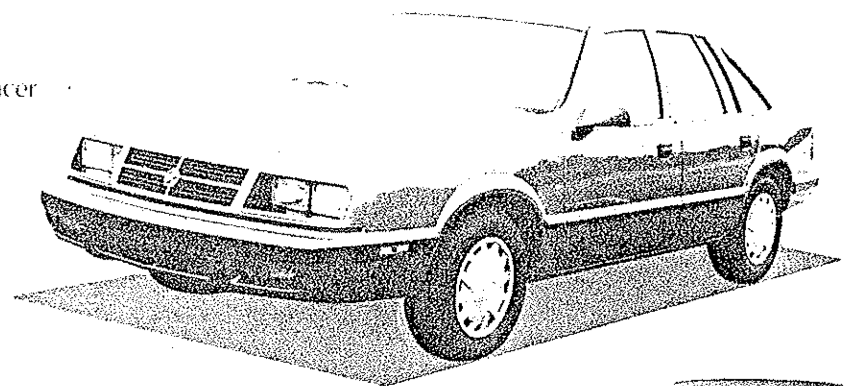
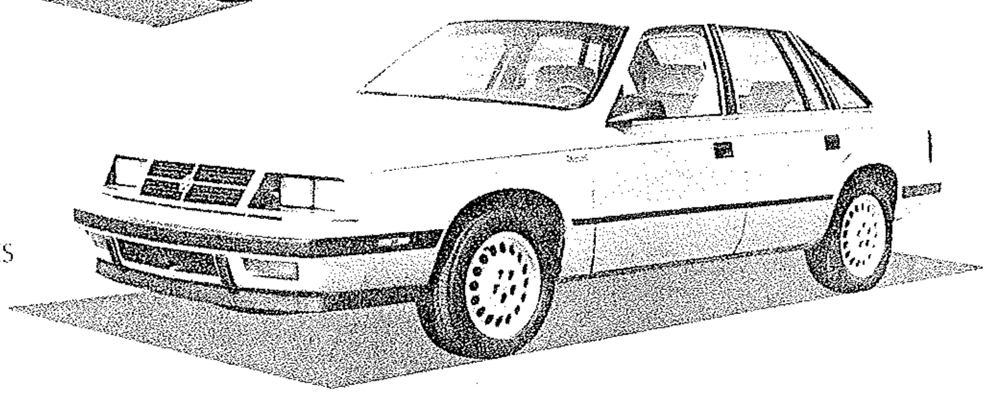
'85 DODGE ENGINEERING

ENGINEERING HIGHLIGHTS

Some items shown on the cars illustrated on this page and other pages are extra-cost items.



1985 Dodge Lancer



1985 Dodge Lancer ES

NEW DODGE MODELS AND FEATURES FOR '85

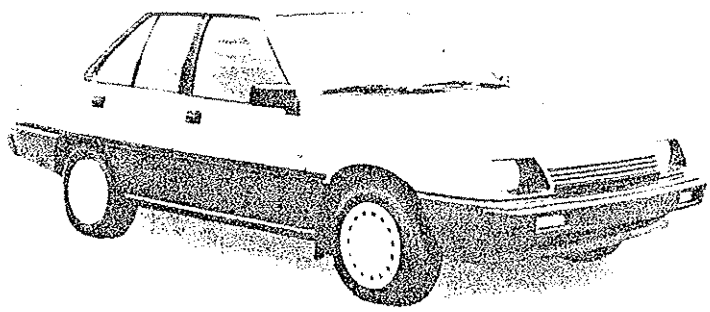
Dodge Lancer is an all-new 4-door liftback sedan that combines the very latest in front-wheel drive high technology with innovative, aerodynamic six-window design. It also provides the added versatility of a liftback. Lancer is offered in two models–Lancer and Lancer ES. The Dodge 2.2-liter single-point, electronic fuel injected (EFI) engine is standard on both, and a multi-point EFI turbocharged version of this engine is optional on both models. A single-piece folding rear seatback is standard on Lancer, while the Lancer ES has 60/40 split rear seatbacks. You can expand cargo capacity to 40.7 cubic feet by folding the single seatback or both sides of the splitback 60/40.

A close ratio, 5-speed manual overdrive transaxle is standard and a 3-speed automatic transaxle is optional–on both models. The advanced Lancer suspension system includes gas-charged front Iso-Struts and rear shocks.

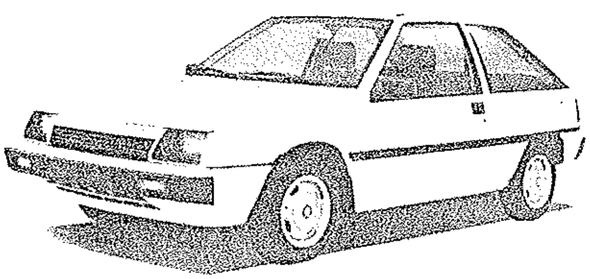
Along with an aero-wrap windshield and semi-flush side glass, fully stamped side doors minimize air drag. Lancer ES is equipped with an electronic instrument cluster that features a highly sophisticated array of both graphic and digital gauges and indicators. Eight optional equipment packages are available (according to model) to meet the varying requirements of buyers. Included in two of these packages are the Electronic Voice Alert and the Electronic Navigator with literally scores of functions that make driving and owning Lancer easier and more pleasurable.

Certain models, packages and options are subject to specific restrictions, requirements or late availability. Consult your dealer for current ordering information.

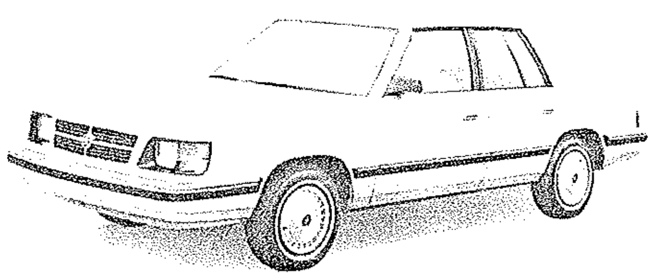
'85 DODGE ENGINEERING



1985 Colt 4-door Premier sedan



1985 Colt DL 3-door hatchback



1985 Aries LE 4-door sedan

**New Colt models imported for Dodge...
built by Mitsubishi Motors Corporation**

For 1985, the Colt lineup has been expanded to include two brand new 4-door sedans, two 3-door hatchbacks and one 5-door hatchback. All five models are marked by fresh new styling. . .and the 3-door hatchbacks are somewhat longer, higher and wider than the previous 3-door hatchbacks. Also, each of the 1985 Colt models have increased interior comfort dimensions.

The new sedan is available in two equipment levels– Colt DL 4-door and Colt Premier 4-door.

The standard engine on all Colt models is a new transverse-mounted 1.5-liter, 2-barrel unit and the standard transaxle is either a 4-speed or 5-speed manual, depending upon model. The Colt 3-door DL hatchback and Colt 4-door Premier sedan can be equipped with a 1.6-liter turbocharged engine as part of two optional equipment packages.

Among equipment items that are standard on the Colt 4-door Premier sedan only are a maintenance-free battery, a folding rear splitback bench seat, tinted glass on all windows, a molded cloth headliner standard on all Colts, digital clock, electric rear window defroster, dual electric remote control outside mirrors and full wheel covers.

Power steering is now available as an option on all but the base model Colt E 3-door and 5-door hatchbacks. The Colt lineup offers four radio options, including three all-new electronically tuned AM/FM stereos two of which have cassette tape players.

New Aries exterior styling and interior appointments

The Aries lineup for 1985 is extensively restyled to present a new, more contemporary look. The grille, front and rear bumpers, headlamps and hood on all models are new. Also, park/turn and sidemarker lamps are integral, and there are new bodyside moldings, as well as drip rail, center pillar and belt moldings. Both 2-door and 4-door models feature a new trunk lid, complemented by new taillamps.

Interior features complement the fresh look of the exterior. The new instrument panel has a driver-oriented appearance. A full-length center console is available. Models equipped with manual transaxles have an instrument panel-mounted shift indicator light which tells the driver when to shift for maximum fuel economy. . .and there are new heater and optional air conditioning controls.

'85 DODGE ENGINEERING

DODGE MOVES AHEAD IN QUALITY ENGINEERING, HIGH-TECH FEATURES AND PERFORMANCE!

Features are engineered with modifications for specific car models to accommodate weight, handling and performance objectives.
See car line sections of this book for feature availability.

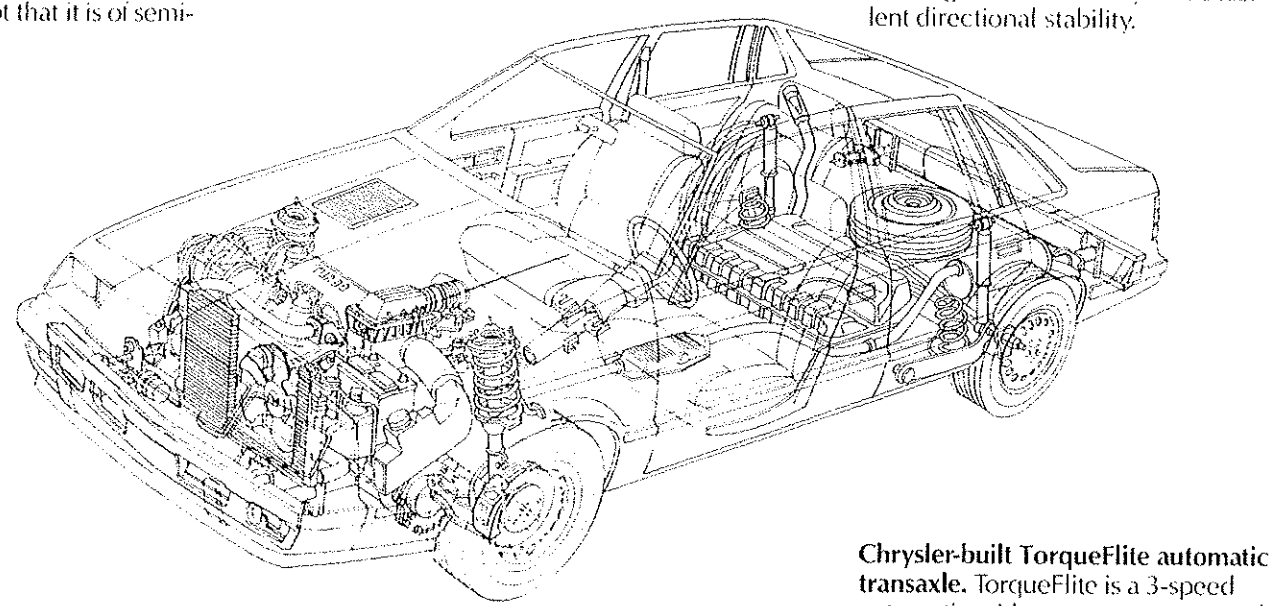
Trailing-arm rear suspension. Daytona, Dodge 600, Lancer and Aries have a rear suspension system made up of spindles, beam, trailing arms, coil springs, shock absorbers adjacent to the coil springs, a track bar and a torsion-tube anti-roll control. All components are rubber-isolated from the car body. A sport or performance handling version of this suspension are standard or optional on certain models.

The Omni and Charger rear suspension system is similar to that of Daytona, Dodge 600, Lancer and Aries–except that it is of semi-independent design and does not feature a track bar. Diplomat and Caravan have 4-leaf spring rear suspension. (See page 28 of this Engineering Section for details on all rear suspension systems, including imports.)

Front-wheel drive. Engine and transaxle drive front wheels through two short drive shafts. Produces excellent front-wheel traction, good directional stability and permits reduction of floor tunnel in car body for greater passenger compartment roominess.

Iso-Strut front suspension with dual-path upper mountings. On all North American-built models except Diplomat, front suspension is of an independent coil-spring-and-strut design with an integral, linkless sway bar. These components are completely rubber-isolated from the car body. The result is a controlled, cushioned and comfortable ride. **The dual-path upper Iso-Strut mountings** further aid in the isolation of noise and vibration. (On all front wheel drive models except Charger and Omni.) (See suspension pages for details.)

Rack-and-pinion steering. The rack-and-pinion gears provide positive, responsive steering with low turning effort, good returnability and excellent directional stability.



Chrysler-built 2.2-liter 4-cylinder engine. This advanced design engine features an overhead cam, 2-barrel electronic feedback carburetor, hydraulic valve adjusters, aluminum cylinder head and intake manifold and five main bearings.

A single-point Electronic Fuel Injection version of the 2.2-liter engine and **turbocharged multi-point Electronic Fuel Injection version** are standard on certain models.

Chrysler-built 5-speed overdrive manual transaxle. This transaxle is synchronized in all forward gears for smooth, quiet shifting and features an overdrive (0.72 to 1) fifth gear for highway fuel economy. Second, third and fourth gear ratios are designed for quick acceleration.

Chrysler-built TorqueFlite automatic transaxle. TorqueFlite is a 3-speed automatic with torque converter and wide-ratio gears with high-ratio first and second gears for good acceleration without loss of fuel economy.

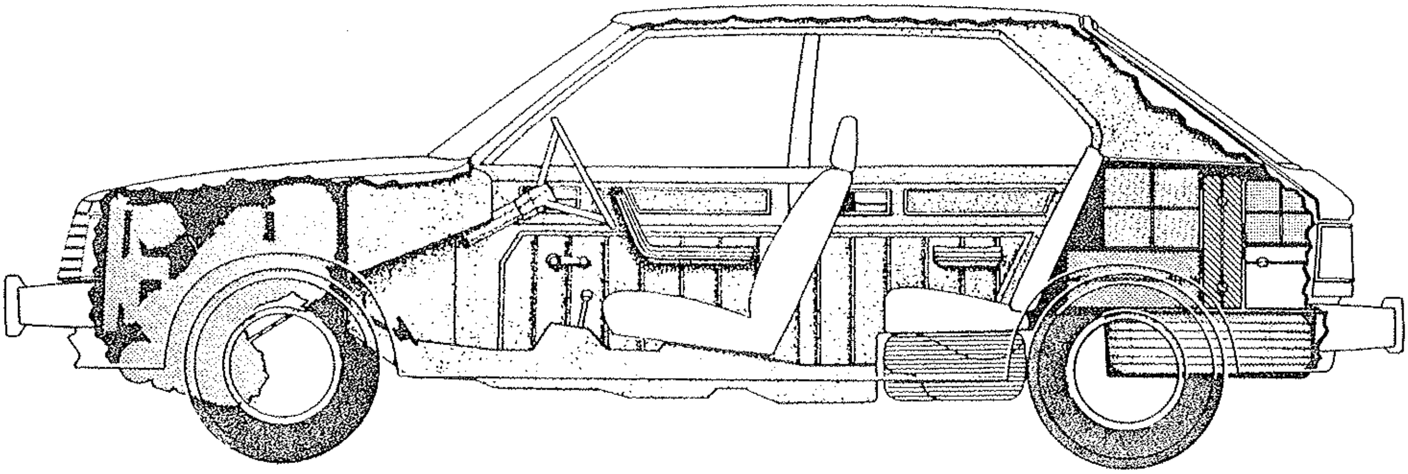
Electronic feedback carburetor. On certain models, an oxygen sensor in the exhaust system monitors combustion gases and feeds back information to the electronic computer to maintain ideal carburetor fuel-air mixtures for best combustion efficiency, engine performance and fuel economy. Also, emissions are reduced. EFI also uses an oxygen sensor.

'85 DODGE ENGINEERING

Anticorrosion treatments. Galvanized steel, Zincrometal, zinc-plated steel, fiberglass, lower body urethane protective coating, plastics and special paints and primers are used extensively on all U.S.-built Dodge models for protection against corrosion.

Unibody construction. Body sheet metal and structural members are welded into a single unit that produces a strong car body. This construction is used on all Dodge models.

Electronic spark control system. Dodge's 2.2-liter engine employs an electronic computer, a digital microprocessor and several engine sensors that work together to advance or retard spark timing as required for best engine performance in all operating conditions.



Front disc brakes. Provide good heat dissipation for more positive braking after successive brake applications than drum brakes. Brake linings are durable semi-metallic. A power booster is standard on all Dodge models. **Rear drum brakes** are self-adjusting on all U.S.-built Dodges.

Catalytic converter. The catalytic converter oxidizes hydrocarbons, carbon monoxide and nitrogen oxide emissions for cleaner air and to meet federal and state emission standards.

Dual braking system. Two separate master cylinders in one housing control two separate hydraulic brake systems. Each system brakes two of the car's wheels. In case of damage to one of the braking systems, the other will continue to function independently to bring the car to a stop.

Sound deadening and insulation. Dodge is expanding its program of body silencing, sealing and insulating to produce even quieter riding cars for 1985. Noise, vibration and harshness are controlled by the latest state-of-the-art technology. (See Engineering Data pages 35 and 36 for details.)

'85 DODGE ENGINEERING

Sales Code	Engine** (Liters, Cubic Inch, Carburetor)	Compression Ratio	Federal and California			
			Horsepower	(kW) @ rpm	Torque, lb-ft	(N-m) @ rpm
EJ2*	1.5-liter (91.5 CID) 2-bbl 4-cylinder	9.4	68 @ 5500	51 @ 5500	82 @ 3500	111 @ 3500
EF2*	1.6-liter (97.1 CID) 2-bbl 4-cylinder turbo	7.6	102 @ 5500	77 @ 5500	122 @ 3000	169 @ 3000
ECA	1.6-liter (97.1 CID) 2-bbl 4-cylinder	8.8	64 @ 4800	48 @ 4800	87 @ 2800	118 @ 2800
EK3*	2.0-liter (121.9 CID) 2-bbl 4-cylinder	8.5	88 @ 5000	66 @ 5000	108 @ 3500	146 @ 3500
EDE	2.2-liter (135 CID) 2-bbl 4-cylinder	9.0	96 @ 5200	72 @ 5200	119 @ 3200	161 @ 3200
EDI†	2.2-liter (135 CID) 2-bbl 4-cylinder	9.6	110 @ 5600	82 @ 5600	129 @ 3600	175 @ 3600
EDF	2.2-liter (135 CID) EFI Electronic Fuel Injection	9.0	99 @ 5600	74 @ 5600	121 @ 3200	164 @ 3200
EDG	2.2-liter (135 CID) Turbocharged EFI	8.1	146 @ 5200	109 @ 5200	168 @ 3600	228 @ 3600
EEA*	2.6-liter (155.9 CID) 2-bbl 4-cylinder	8.7	101 @ 4800	75 @ 4800	140 @ 2800	190 @ 2800
EEA*	2.6-liter (155.9 CID) 2-bbl 4-cylinder (Caravan)	8.7	104 @ 4800	77 @ 4800	142 @ 2800	192 @ 2800
EF4*	2.6-liter (155.9 CID) 2-bbl 4-cylinder turbo, EFI	7.0	145 @ 5000	108 @ 5000	185 @ 2500	251 @ 2500
ELA	5.2-liter (318 CID) 2-bbl V-8	9.0	140 @ 3600	104 @ 3600	265 @ 1600	359 @ 1600

*Manufactured by Mitsubishi Motors Corporation. †High Performance. **Premium unleaded fuel recommended for turbocharged and high-performance engines.

Horsepower and torque

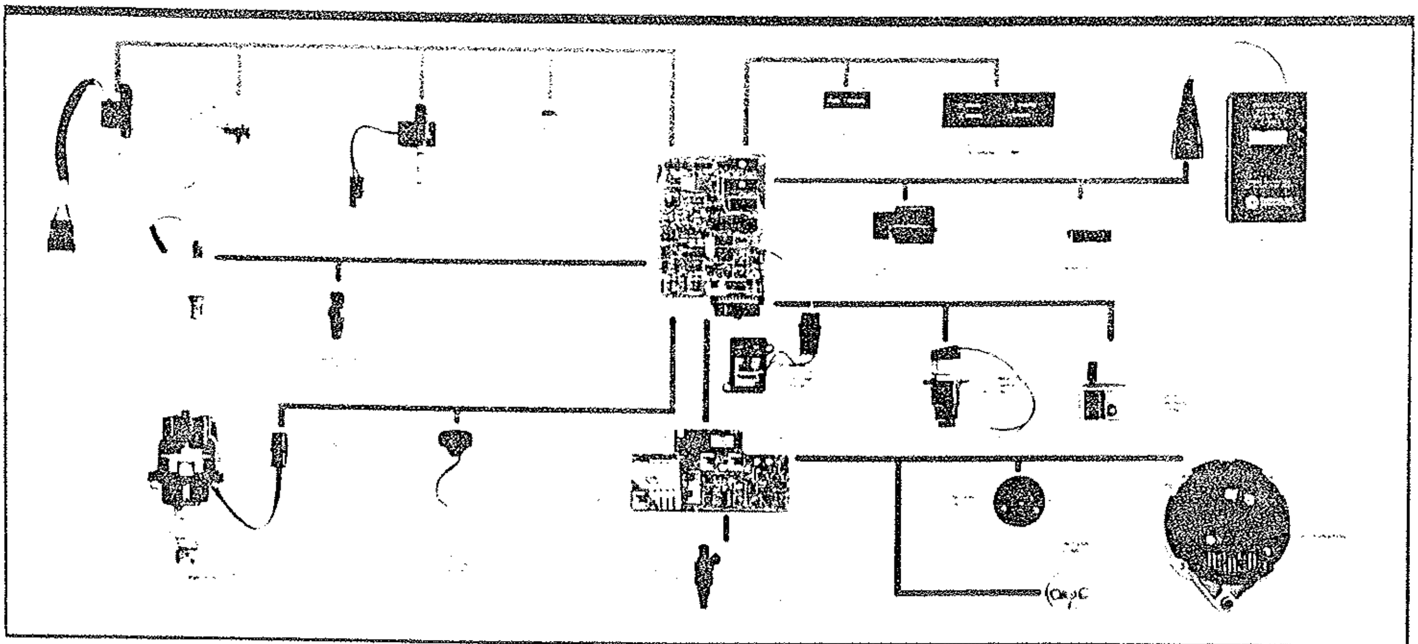
All ratings shown for horsepower and torque are net ratings. Net horsepower and torque ratings are measured at the flywheel of the engine, but with all accessories—as in a typical car—such as fan, alternator, automatic spark advance, and an exhaust system installed.

1985 EPA ESTIMATES#

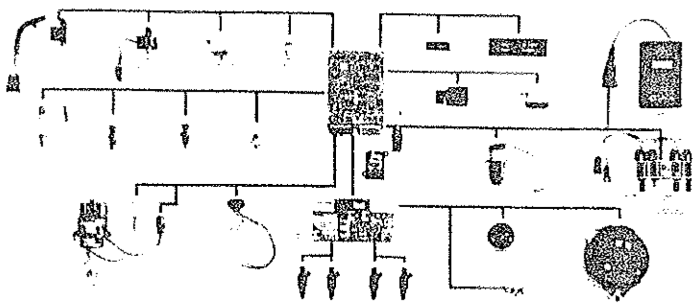
Vehicle	Standard Engine (Size–Liters)	Federal		California	
		City Est. MPG	Hwy. Est. MPG	City Est. MPG	Hwy. Est. MPG
Colt E 3-door	1.5L*	37	41	37	40
Colt E 5-door, Colt DL 3-door and 4-door sedans, and Colt Premier 4-door sedan	1.5L*	31	38	31	38
Conquest (Turbo) (EC)	2.6L*	19	24	19	24
Colt Vista Wagon	2.0L*	24	30	23	30
Omni and Omni SE 5-door	1.6L	31	40	31	40
Charger 3-door	1.6L	31	40	31	40
Charger 2.2 3-door	2.2L	21	30	21	29
Shelby Charger (Turbo)	2.2L	19	29	19	29
Aries, Aries SE and Aries LE sedans	2.2L	26	33	25	30
Aries SE and LE wagons	2.2L	26	33	25	30
Daytona (EFI)	2.2L	23	34	23	34
Daytona Turbo (EFI) (Turbocharged)	2.2L	19	29	19	29
Lancer (EFI)	2.2L	23	34	23	33
Lancer Turbo (EFI)	2.2L	19	29	19	29
Dodge 600 2-door (EFI)	2.2L	23	26	22	25
Dodge 600 Convertible (EFI)	2.2L	23	26	22	25
Dodge 600 ES Turbo Convertible (EFI)	2.2L	20	23	19	24
Dodge 600 SE 4-door sedan (EFI)	2.2L	23	26	22	25
Diplomat Salon and SE	5.2L	16	22	16	20
Caravan	2.2L	21	27	21	27

#Use these EPA Estimates to compare. Actual mileage may differ depending on options, driving conditions, habits and vehicle condition.
*Manufactured by Mitsubishi Motors Corporation.

THE CHRYSLER-BUILT SINGLE-POINT AND MULTI-POINT ELECTRONIC FUEL INJECTION SYSTEMS



Throttle-body injection–single-point–2.2-liter engine without turbocharger



Intake-port injection–multi-point–2.2-liter engine with turbocharger

These EFI components are tailored to the characteristics of the 2.2-liter engine in order to meet Chrysler's high engineering standards

At the heart of both systems is a component known as a Logic Module that controls ignition timing, air fuel ratio, emission control devices and idle speed. The Logic Module has the ability to "teach itself." In other words, it updates and revises its programming to meet all operating conditions through an adaptive memory.

All Logic Module inputs are evaluated and proper signals sent to a Power Module. The Power Module then alters either the fuel flow at the injector or ignition timing, or both.

Simply put, the Logic Module does the thinking and the Power Module does the work.

Advantages of Chrysler-built Electronic Fuel Injection over Carburetors

- Performs more engine functions, and does them quicker, more reliably and more accurately.
- Employs a wide variety of sensors to monitor air intake temperature, coolant temperature, throttle position, air flow rate, oxygen in the exhaust gas and manifold boost (on turbocharged models) on which to base command decisions and ensure more precise control for best engine operation.
- Overcomes problems experienced with carburetors during starting and idling that result from less than precise air-fuel mixing at low induction flow rates.
- Ensures consistent and accurate fuel metering under all operating conditions.
- Advances and retards ignition timing automatically as required by operating conditions—even employs an engine-knock sensor to retard the spark if incipient knock occurs. Thus, the knock is nipped in the bud. (Turbocharged EFI engines for 1985 are specially modified for this function. See page 10 for details.)
- Provides automatic idle adjustment for every engine condition when the accelerator pedal is released.
- Governs fuel flow by means of a pressure regulator. In the single-point system (EFI) fuel pressure is, for the most part, consistent at 36.3 pounds-per-square inch. In the multi-point system (EFI Turbo), pressure fluctuates between approximately 42 and 64 because of pressure changes in the intake manifold.

Principal Differences Between the Two Systems

1. **Throttle-Body Injection—Single-Point**
   As the term suggests, this system employs a single fuel injector in the throttle body assembly. The duration and timing of the fuel injection pulses are regulated by the Logic Module referred to above. The 2.2-liter EFI engine uses this system.
2. **Intake-Port Injection—Multi-Point**
   This system employs four fuel injectors—one for each intake port of the intake manifold on the 2.2-liter EFI Turbocharged engine. Fuel is injected alternately through the four injectors in pulses regulated by the Logic Module. This system coordinates fuel injection pulses and engine spark timing for optimum engine efficiency in all operating conditions—starting, idling, accelerating, cruising, decelerating, etc.

1985 DODGE TURBOCHARGED ENGINES...WITH ELECTRONIC FUEL INJECTION!

Turbocharging puts extra power and quickness into today's fuel-efficient 4-cylinder engines*
The engine turbocharger is the ideal solution for providing extra acceleration and passing quickness for today's fuel-efficient 4-cylinder engines. A small, stainless steel turbine wheel, in a housing which is bolted to the exhaust manifold, is driven at tremendously high speeds (up to 100,000 rpm) by hot exhaust gases, and it rotates a small aluminum compressor on the other end of the same drive shaft. The compressor is located ahead of the intake manifold where it rams air-fuel mixtures into the combustion chambers under pressure to produce greater power in each cylinder when the spark plug fires.

For 1985, an electronic system, integral with the engine computer, continuously monitors eight parameters in order to maintain the proper boost level under all engine operating conditions. In 1984, engine boost pressure was controlled by a pneumatic system.

If the boost pressure were not limited, the engine would be subjected to higher pressures and higher temperatures than the engine could tolerate. The maximum boost level is physically controlled by a wastegate which is a valve that permits some of the exhaust gases to bypass the turbine wheel. This slows the turbine and in turn the air compressor, thus reducing the air flow into the engine. Controlled transient overboost is permitted during snap acceleration for up to 10 seconds.

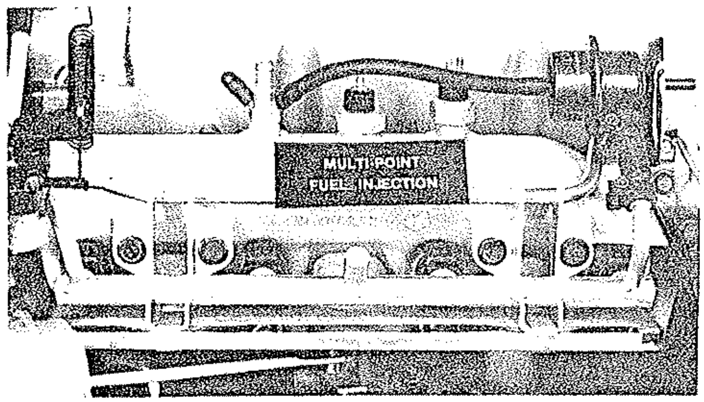
The wastegate actuator solenoid is located in the pressure signal line leading from the intake manifold to the wastegate actuator. This solenoid receives a signal from the computer and, in turn, controls the position of the wastegate through the actuator.

Control of spark knock is achieved by regulating boost as well as spark. When the computer senses spark knock in a cylinder, it signals a small spark retard to that cylinder only. If the knock persists, it then lowers engine boost until the spark knock stops. Performance loss is therefore minimized.

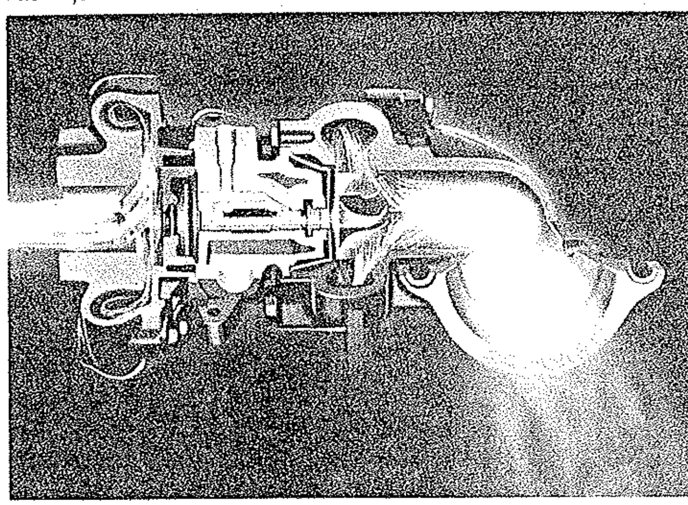
Bearings cooled by air, oil and water. The turbocharger bearings on the shaft between the turbine and compressor are cooled and lubricated by oil that is pumped through and around the bearings. A water jacket around the turbine bearing cools the oil and helps to increase the life of the oil and the turbocharger. And, naturally, the air that flows through the engine compartment helps in the job of cooling.

Turbocharger boosts horsepower 47%, boosts torque 39% for 2.2-liter engine!
Dodge's 2.2-liter engine with a turbocharger and electronic fuel injection has a horsepower rating of 146 @ 5,200 rpm—that's a 47% increase over the rating of 99 horsepower @ 5,600 rpm for an electronic fuel-injected 2.2-liter engine without the turbocharger. Engine torque is increased to 168 pounds feet @ 3,600 rpm with the turbocharger—a 39% increase over the 121 pounds feet @ 3,200 rpm for the same engine without the turbocharger.

*Premium unleaded fuel recommended



Turbocharged 2.2-liter engine with Multi-Point Electronic Fuel Injection



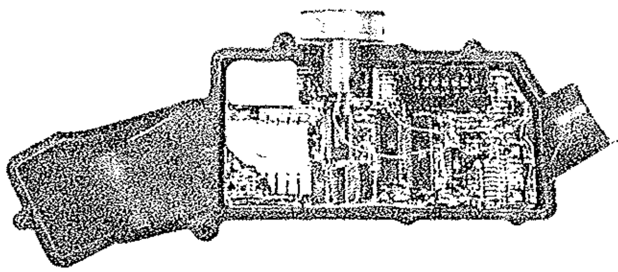
Turbocharger cutaway

Turbocharged 4-cylinder engines can be driven for good fuel economy because they provide the on-demand power of a larger engine, but maintain the efficiency of a four-cylinder engine.

Dodge currently offers three turbocharged engines:

1. **The Chrysler-built 2.2-liter turbocharged engine with multi-point electronic fuel injection.**
2. **The Mitsubishi-built 2.6-liter turbocharged engine with dual-point electronic fuel injection.**
3. **The Mitsubishi-built 1.6-liter turbocharged engine with dual-point electronic fuel injection.**

MORE ENGINE ELECTRONIC FEATURES



Electronic computer used with Electronic Fuel Control System

Electronic Fuel Control System

This system features an Electronic Combustion Computer that controls the operation of the Electronic Spark Control System, the Electronic Feedback Carburetor and the Electronic Ignition which are standard on some Dodge 2.2-liter 4-cylinder and 5.2-liter (318 CID) V-8 engines, and on the 1.6-liter Peugeot-built 4-cylinder engine.

Here's what the Electronic Combustion Control System does:

• Provides smooth engine performance during warm-up • Contributes to good fuel economy • Promotes good acceleration • Provides smooth engine performance throughout the engine speed range • Helps to control engine emissions—even before they leave the engine

The Electronic Combustion Computer is the central control of the system. This computer employs a microprocessor with digital electronic circuitry for accurate processing of signals from seven engine and environmental sensors and for precise adjusting of engine timing and air-fuel mixtures (on carburetor engines).

Seven engine and environmental sensors

These sensors are used for:
• Engine speed (rpm) • Engine load • Engine starting condition • Engine coolant temperature • Carburetor throttle—"open" or "closed" • Ambient air temperature • Exhaust oxygen

How the system controls ignition timing

All system sensors, except the oxygen sensor, provide information to the computer for obtaining best ignition timing in all operating conditions. Since conditions are constantly changing, the computer is constantly making instantaneous adjustments in the timing of spark-plug firings for best engine efficiency.

The engine load sensor, for example, reads the manifold vacuum, and signals the computer to advance the spark for maximum power when pulling up a hill—and again to adjust the spark for best fuel economy going down the other side.

The engine speed (rpm) sensor signals the computer to advance the spark timing as engine speed increases to meet the power requirements—and for optimum fuel economy and efficiency at part throttle.

Engine starting condition, coolant temperature, throttle position, and ambient air temperature are also programmed into the system through sensors and the computer for refinements in ignition timing.

Exhaust oxygen sensor and Electronic Feedback Carburetor

This part of the Electronic Fuel-Control System maintains an ideal air-fuel mixture in the carburetor for good engine performance, driveability and improved fuel economy. The oxygen sensor monitors oxygen content in the exhaust manifold to determine whether the ideal air-fuel mixture is being maintained in the carburetor.

MORE ENGINE ELECTRONIC FEATURES

Electronic ignition

All Dodge engines, including the Mitsubishi-built import 4-cylinder models and the Peugeot-built 1.6-liter engine, are equipped with electronic ignition. This means there are no distributor points or condenser in the ignition system of any Dodge engine. The malfunction of points and condenser was one of the most frequent causes of poor engine performance that required an engine tune-up. Now, these troublesome parts have been eliminated and tune-up costs are reduced.

Other benefits of electronic ignition

- Consistent high-voltage energy is transmitted to the spark plugs to improve highway performance—at speeds where voltage tended to be inconsistent in ignition-point distributors.
- Up to 35% more voltage is available to the spark plugs during cold starting.
- The consistently high voltage of electronic ignition greatly reduces the incidence of spark-plug misfiring—so spark plugs should operate satisfactorily in normal passenger-car service for 30,000 miles with unleaded fuel.

How electronic ignition works

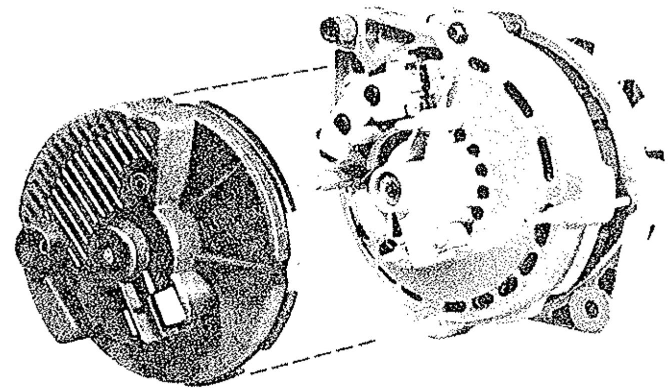
The ignition system in the Dodge V-8 engine and the Mitsubishi-built 4-cylinder engine uses a distributor with a gear-like reluctor. The gear-like reluctor—with a tooth for each spark plug—rotates through the magnetic field of a permanent magnet. As each tooth passes through the magnetic field, a small current is produced in the magnet's pickup coil. This current, amplified by electronics, triggers the high-voltage ignition coil to fire the spark plugs. An air gap between the reluctor's rotating teeth and the pickup coil prevents contact and wear. With no wear, voltage to the spark plugs remains consistently high during the operational life of the distributor.

Distributor with Dodge 2.2-liter and Peugeot-built 1.6-liter engines

The distributor used with the electronic ignition on the Dodge 2.2-liter and the 1.6-liter Peugeot-built 4-cylinder engines has an electromagnet—rather than a permanent magnet—that creates the magnetic field. And it uses rotor vanes—rather than a reluctor—to rotate through the magnetic field. These vanes change the voltage level in the magnetic field—and that change triggers the electronic system to amplify the current to the ignition coil for firing the spark plugs.

"High Output" 90-amp alternator

This new alternator is used on all 2.2-liter EFI and EFI turbocharged engines to generate more electrical current to meet vehicle electronics demands and those of the electrical accessories. It also improves battery recharging. The new alternator has no visible voltage regulator. Electronic components within the charging system's Logic and Power Modules provide for charging control. Expanded memory codes within the circuitry of the Logic Module help mechanics make quicker and more accurate checks of the charging system.



"High Output" alternator

78-ampere heavy-duty alternator

This alternator is standard on Charger 2.2 and the Shelby Charger. It is also on all non-EFI U.S.-built Dodge models equipped with the optional electrically heated rear-window defroster or optional air conditioning (or both). Higher amperage output is achieved by using more copper in the windings. Also, finned, nickel-plated copper heat-sinks keep the diodes operating at proper temperatures even while conducting more current.

Other alternators

A 65-ampere alternator is standard on the base Charger model, on Omni, Vista and Conquest.

A 60-ampere alternator is standard on Aries, Diplomat, and Caravan.

A 45-ampere alternator is standard on Colt models.

Electronic voltage regulator

Dodge first introduced the electronic voltage regulator back in 1969 and thereby eliminated the moving mechanical parts that caused most of the service problems that occurred in electromechanical voltage regulators. There are no moving parts in an electronic voltage regulator. Instead, diodes, transistors and advanced circuitry maintain the correct voltage in the electrical system.

Electronic indicator lamp

An electronic low-voltage indicator lamp, used on all Aries and Dodge 600 models, monitors the entire charging system, including the alternator. A conventional indicator lamp monitors the alternator only.

A LEADER IN HIGH-TECH ELECTRONICS—DODGE OFFERS NEW ADVANCES FOR 1985!

For over twenty-three years, Chrysler Corporation has maintained a position of leadership in high-tech automotive electronics among U.S. automobile manufacturers. Dodge shares in these electronic advances.

Historical highlights of Dodge's high-tech electronic advances

1960 First made the alternator practical for automotive use by incorporating silicon diodes as an electronic rectifier in the design.

1969 Introduced a modern silicon electronic voltage regulator on all cars and trucks. This device has no moving parts and is much more reliable than the electromechanical regulators used previously.

1973 Made electronic ignition standard on all cars and trucks. This device eliminated troublesome ignition points and condenser—the major cause of engine tune-ups.

1976 Introduced the Electronic Spark Control System. This system uses an electronic computer, and engine and environmental sensors, which combine to adjust the timing of spark-plug firings for good combustion and smooth engine performance.

1977 Introduced second-generation Electronic Spark Control Computer. This computer includes circuitry for electronic ignition, and computes all vital information necessary to control the ignition system. The distributor centrifugal advance flyweights and one of the two pickup coils were eliminated from the distributor.

1978 Introduced Electronic Search-Tune radio.

1979 Expanded use of Electronic Spark Control System to all 5.9-liter (360 CID) V-8 engines.

1979½ Electronic Feedback Carburetor Emissions Control System introduced on compact and midsize cars sold in California equipped with a 3.7-liter (225 CID) 1-barrel 6-cylinder engine and automatic transmission.

1980 Incorporated a digital microprocessor in the spark control computer of the Electronic Spark Control System. The digital electronic circuitry of this unit offers more operating precision and programming flexibility than the voltage-dependent analog system used previously.

Incorporated a detonation suppressor system in the Electronic Spark Control System on V-8 engines sold in California. A sensor mounted on the intake manifold monitors background vibration levels of the engine. When engine knock frequencies are detected, the engine spark timing is electronically retarded to suppress the engine knock—and is automatically advanced when the condition is removed.

1981 Expanded use of electronic ignition to include all imported Mitsubishi-built engines as well as all U.S.-built engines.

Expanded use of Electronic Combustion Control System to all U.S.-built 4-cylinder and V-8 engines and the California 3.7-liter (225 CID) Slant Six. This system employs a single Combustion Computer for the electronic ignition, Electronic Spark Control System and Electronic Feedback Carburetor.

1982 Adaptive memory system incorporated in Electronic Spark Advance computer for 1.7-liter and 2.2-liter engines sold in high altitude areas. This memory system continuously fine tunes air-fuel mixture calibrations and spark advance calibrations as the car moves from one altitude to another in mountainous terrain. It is a built-in altitude compensator.

1983 Electronic Voice Alert system made available on Dodge 600 and 400 models. Electronically synthesized voice messages remind the driver to perform certain car functions and warn of certain malfunctions.

Electronic Travel Computer made available on Dodge 600 and 400 models. Instant data concerning trip distance, average speed, fuel economy, travel distance on remaining fuel, time and date are available in a display window merely by pushing buttons on the computer console. See Daytona section of this book for details.

Expanded use of Electronic Combustion Control System to include the Peugeot-built 1.6-liter 4-cylinder engine introduced during the 1983 model year.

1983½ Electronic Fuel Injection for 2.2-liter engine. Single-point throttle-body fuel injection system.

1984 Multi-point Electronic Fuel Injection for turbocharged 2.2-liter engine.

Twin-point throttle-body fuel injection for Mitsubishi-built 1.6-liter and 2.6-liter engines.

Electronically tuned radios with integral digital clock.

New Electronic Navigator available in Daytona sports car.

1985 New heater and air conditioner controls for easier operation and improved reliability.

EFI turbocharged engine equipped with electronic boost pressure control. New AM Stereo.*

*Limited AM stereo reception may be experienced in some areas since some AM stereo broadcasting is not compatible with this radio's reception capability.

1985 DODGE ENGINES

(See Engineering Data page 8 for horsepower, torque and fuel economy ratings of all engines.)

Chrysler-built 2.2-liter Trans-4

Dodge and Chrysler Corporation can be proud of this rugged, quality-built 2.2-liter 4-cylinder engine. Proven durability, power and fuel economy are now a matter of record—and its reliability in service is attested to by over 23 billion owner-driven miles without a single recall!

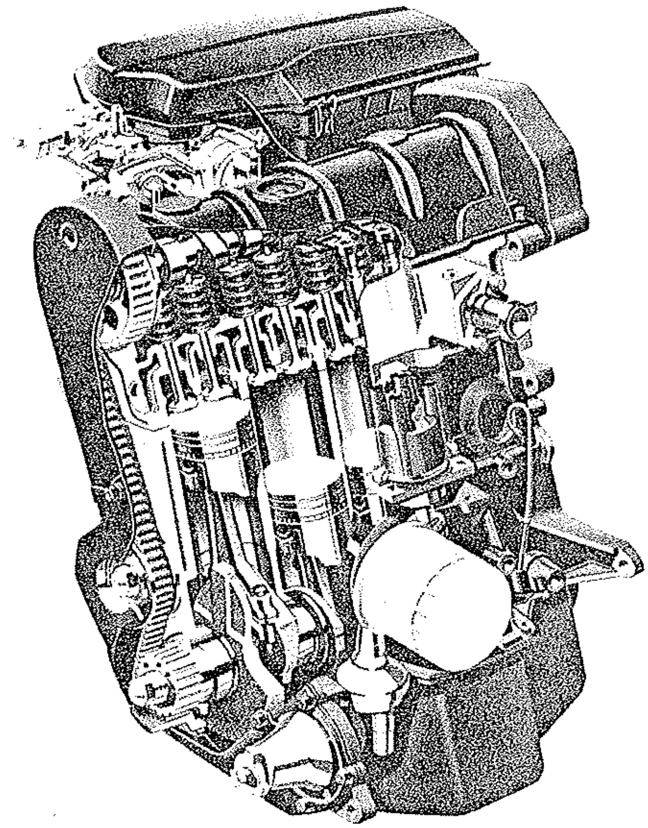
The basic 2.2-liter engine—engine block, crankshaft, bearings, connecting rods—is so tough and durable that high-powered versions have been designed without changing these basic components.

New vacuum-operated secondary carburetor

This component replaces the mechanically-operated secondary carburetor used previously and provides improved driveability, especially during engine warmup.

Valve streamlining helps horsepower

The intake and exhaust valves of the Trans-4 engine are streamlined to permit the air-fuel mixture to flow smoothly and efficiently past the valve seat areas as it enters and leaves the combustion chambers. This increased induction and exhaust efficiency improves engine horsepower at higher engine speeds. Previously, valve manufacturers created a flat spot on each valve that interrupted the smooth air-fuel flow and reduced engine efficiency.



Dodge 2.2-liter Trans-4 engine

Check these 2.2-liter engine durability features:

Hardenable iron alloy camshaft with hardened and phosphate-treated lobes

Five camshaft bearings

Oil jet camshaft lobe lubrication

Hardenable iron alloy exhaust valve guides

Cobalt-iron alloy exhaust valve seat inserts

Nodular iron exhaust manifold

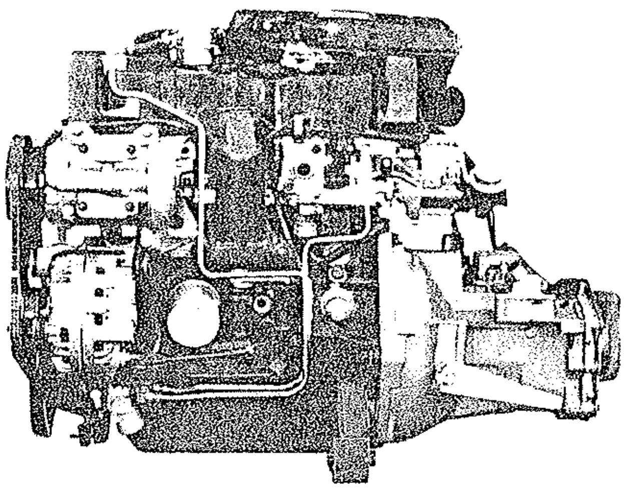
Molybdenum-filled nodular iron top piston rings

Cast iron cylinder block

Five main bearings (crankshaft)

Nodular cast iron crankshaft

Ceramic water pump shaft seal seat



Dodge 2.2-liter Trans-4 engine

Other features of the 2.2-liter Trans-4

• Compact design combustion chambers with squish areas at both sides • Aluminum cylinder head and intake manifold • Chrome-plated intake and exhaust valve stems • Steel-backed rubber valve stem seals • Dual chrome-vanadium valve springs • Hydraulic valve adjusters—no adjustments required • Cast aluminum pistons with steel struts for heat expansion control • Cog-belt-driven overhead camshaft with Lubrited camshaft lobes for long life • Rotary engine oil pump • Full-flow oil filter • Carburetor fresh-air induction system with heated-air door in air inlet to aid cold weather warm-up • Electric choke • Electric motor-driven engine cooling fan • Pressurized engine cooling systems with overflow tank • 335-ampere or 400-ampere maintenance-free battery with battery charge test indicator

For 1985 there are four versions of the 2.2-liter engine:

1. 2.2-liter 2-barrel
2. 2.2-liter 2-barrel High Performance
3. 2.2-liter EFI
4. 2.2-liter EFI turbocharged

1. 2.2-liter 2-barrel engine

This engine is standard on all Aries and Caravan models, and is optional on all Omni models, Charger base models and Charger 2.2 with automatic tranaxle.

Specifications

Engine type: Overhead cam, transverse-mounted, 4-cylinder

Displacement	2.2 liters (135 CID)
Bore and stroke	87.5mm x 92mm (3.44" x 3.62")
Compression ratio	
–2-bbl. and EFI	9.0 to 1
–2.2 High Performance	9.6 to 1
–Turbocharged 2.2	8.1 to 1
Ignition system	Electronic

1. 2.2-liter 2-barrel engine

This engine is standard on all Aries and Caravan models, and is optional on all Omni models, Charger base model and Charger 2.2 with optional automatic transaxle.

2. High Performance 2.2-liter engine standard on Charger 2.2

This high performance engine has a special camshaft, high 9.6 to 1 compression ratio, specially calibrated engine electronics, increased piston fit clearance and performance exhaust system. Result: 110 horsepower @ 5,600 rpm; 129 pounds feet of torque @ 3,600 rpm. This engine is standard on the Charger 2.2 with 5-speed close ratio manual transaxle and is available on base Omni with the GLH Package. Premium unleaded fuel is recommended.

1985 DODGE ENGINES

3. **2.2-liter engine with Electronic Fuel Injection**
   (See Engineering Data page 10 for fuel-injection story.)
   This engine is standard on the base model Daytona, all Lancer models and all Dodge 600 models. It uses a single electronically controlled fuel injector in the throttle body assembly. Horsepower is 99 @ 5,600 rpm; torque is 121 pounds feet @ 3,200 rpm.
4. **2.2-liter turbocharged engine with multi-point electronic fuel injection**
   (See pages 9 and 10 for turbocharger and fuel injection stories.)
   This engine is standard on Shelby Charger and Daytona Turbo; optional on Omni GLH, base model Daytona, all Lancer and Dodge 600 models. It develops 146 horsepower @ 5,200 rpm and 168 pounds feet of torque @ 3,600 rpm. Premium unleaded fuel is recommended.

5.2-liter (318 CID) V-8 engine

The rugged, durable and efficient 5.2-liter (318 CID) 2-barrel V-8 continues to provide excellent performance as the lone remaining V-8 engine in Dodge's lineup. This V-8 engine is standard on all Dodge Diplomat models.

Specifications

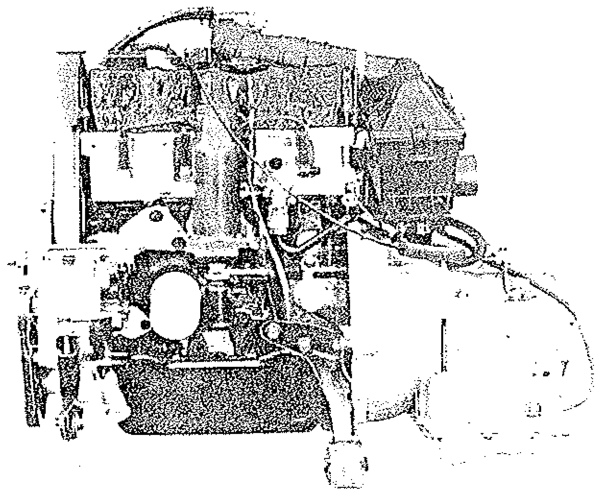
Engine type: Overhead valve V-8, in-line-mounted

Displacement	5.2 liters (318 CID)
Bore and stroke	99.3mm x 84.1mm (3.91" x 3.31")
Combustion chambers	Modified wedge
Compression ratio	8.5 to 1
Carburetor	2-barrel
Ignition system	Electronic

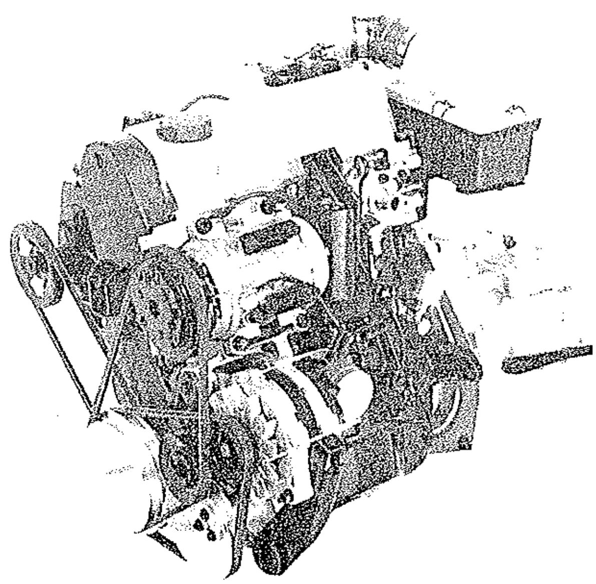
For 1985, the 318 V-8 has been re-engineered to provide an 8% improvement in basic engine fuel economy (see page 8 of this Engineering Data Section for 1985 Diplomat EPA EST MPG).

The fuel/air burn rate has been increased by adding valve shrouding to the combustion chamber, by an increase in compression ratio to 9.0-to-1 over the previous ratio of 8.4-to-1, and by a lower friction valve gear system.

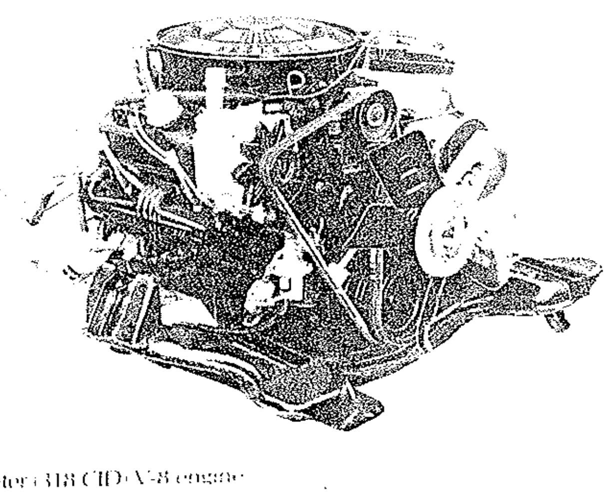
These modifications have also provided for improved engine performance.



2.2-liter engine with Electronic Fuel Injection (Single-point throttle-body injector)

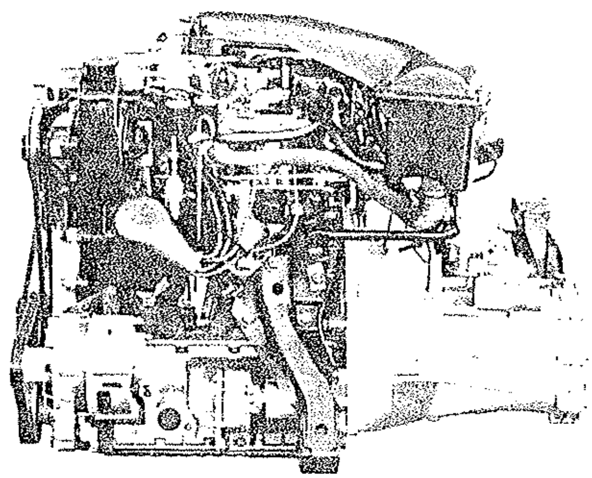


2.2-liter turbocharged engine with multi-point electronic fuel injection with engine dress-up.



5.2-liter (318 CID) V-8 engine

IMPORT 4-CYLINDER ENGINES



Peugeot-built 1.6-liter 4-cylinder engine

Peugeot-built 4-cylinder engine

This overhead valve 1.6-liter 4-cylinder engine is built in France by Peugeot for Chrysler Corporation and is used to power Omni and Charger in certain applications (See Omni and Charger car sections of this book for availability).

Specifications

Engine type: 4-cylinder, overhead valve transverse-mounted

Displacement	1.6 liters (97.1 CID)
Bore and stroke	80.6mm x 78mm (3.17" x 3.07")
Combustion chambers	Wedge-shape design
Compression ratio	8.8 to 1
Carburetor	2-barrel, electronic feedback system
Ignition system	Electronic

Chrysler electronics control Peugeot-built 1.6-liter engine for top efficiency, economy, driveability and all-around performance

Chrysler's most advanced electronics monitor and control the performance of the Peugeot-built 1.6-liter 4-cylinder engine. This engine features Chrysler Corporation's exclusive combustion computer system, which includes electronic ignition, electronic control of spark timing, Hall-effect distributor and an electronic feedback carburetor. This electronic system assures precise control of all engine functions in all operating conditions and provides these benefits:

- Smooth engine performance during warm-up
- Good fuel economy
- Good acceleration
- Good engine performance and smoothness throughout the speed range
- Reduction and control of engine emissions

(See Engineering Data pages 10 through 13 for additional information about Chrysler electronics.)

Other features of the Peugeot-built 1.6-liter 4-cylinder engine

• Cast iron cylinder block • Forged steel crankshaft • Five main crankshaft bearings • Forged steel connecting rods • Two-row roller chain drive for camshaft • Aluminum alloy cylinder head and intake manifold • Mechanical tappets • Viton valve stem oil seals • Overhead valves • Coolant passages through intake manifold to assist carburetor warm-up for better "cold" engine performance • Hardened steel valve seat inserts • Automatic electric choke • Articulated joint connects exhaust manifold to exhaust pipe—absorbs vibrations • Emissions control provided by 3-way catalytic converter with exhaust oxygen sensor, air pump, exhaust gas recirculating valve (EGR), positive crankcase ventilation (PCV) valve, evaporative control system with activated carbon canister and feedback carburetor

IMPORT 4-CYLINDER ENGINES

Mitsubishi-built engines

For 1985, Dodge is using five Mitsubishi-built 4-cylinder engines:

1. A new 1.5-liter MCA-JET 2-barrel carburetor engine—standard on all Colt models.
2. A 1.6-liter MCA-JET turbocharged engine with electronically controlled fuel injection. Available on Colt DL 3-door hatchback with GTS Turbo Package and Colt Premier 4-door sedan only—and only as part of an optional turbo package.
3. A 2.0-liter 2-barrel carburetor engine—standard on Colt Vista Wagon, not available otherwise.
4. A 2.6-liter MCA-JET 2-barrel carburetor engine—optional on some Aries, Dodge 600 and Caravan models.
5. A 2.6-liter MCA-JET turbocharged engine with electronically controlled fuel injection—standard on the Conquest sports car; not available otherwise.

MCA-JET third valve and combustion system

All Mitsubishi-built 4-cylinder engines used by Dodge have the MCA-JET super-lean combustion system. This system utilizes a third or "jet" valve in the combustion chamber. This valve opens when the intake valve opens and feeds a high-speed (exceeds the speed of sound) stream of air—or very lean mixture of fuel and air—into the combustion chamber when the engine is operating at low speeds and the throttle is almost closed. This high-speed stream greatly leans out the fuel-air mixture coming in through the intake valve, causes a strong swirling pattern in the combustion chamber, results in rapid and more complete burning of the fuel-air mixture and improves fuel economy.*

At higher engine speeds, when the throttle is opened wider, air speed through the jet valve slows down and conventional combustion is restored. Thus, engine power is maintained at high levels while fuel consumption and exhaust emissions are reduced.

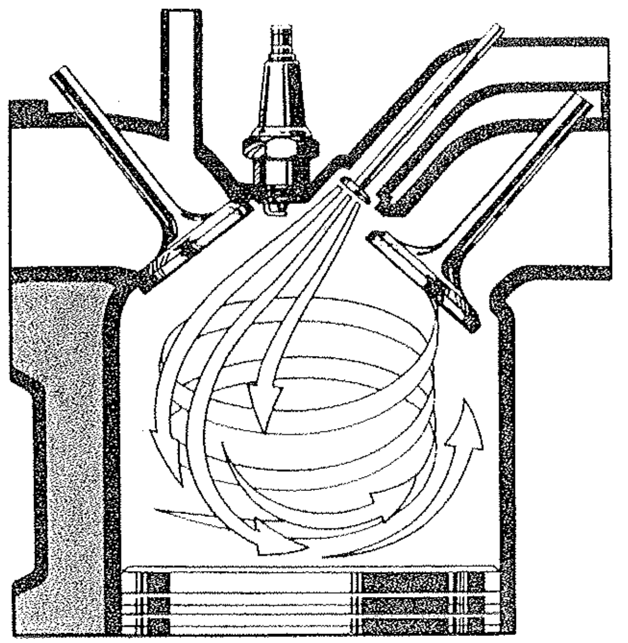
*See chart on page 8 for EPA estimates.

Silent Shaft design provides smooth operation for 2.6-liter and 2.0-liter engines

The 2.6-liter and 2.0-liter Mitsubishi-built 4-cylinder engines have a Silent Shaft design for smooth, quiet engine operation. This design utilizes two counterbalancing shafts in the engine to damp vibrations normally associated with 4-cylinder engines. As a result, these two engines run and idle much more smoothly.

Other features of Mitsubishi-built engines

• Hemispherical combustion chambers • Overhead camshaft • Cast iron cylinder block • Forged steel crankshaft in 2.6-liter, 2.0-liter and 1.6-liter engines • Five main crankshaft bearings • Aluminum cylinder head • Aluminum intake manifold • Electric motor-driven engine cooling fan for transverse-mounted engines • Rotary engine oil pump • Pressurized coolant system with overflow tank • Curved 5-blade cooling fan on 2.6-liter optional engine for Dodge 600, Aries and Caravan models—reduces fan noise 45% compared with previous design and requires 6% less energy to operate



MCA-JET jet valve air flow

New 1.5-liter, 4-cylinder Mitsubishi-built engine

For 1985, this engine replaces the 1.4-liter as the standard engine on all Colt models. Aside from its larger displacement, it has several other modifications that help provide both higher performance and greater fuel efficiency:

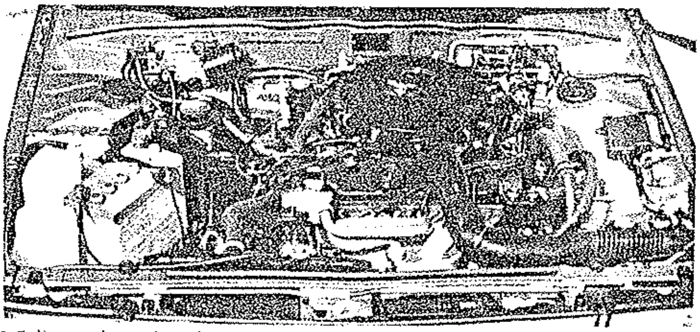
- A new configuration of the cylinder head intake/exhaust port and intake manifold
- Increased compression ratio (9.4-to-1, compared with 8.8-to-1 for the engine it replaces. See page 20 for further specifications)
- A change in the profile of the cam
- Use of a resin air cleaner
- Use of a V-ribbed belt and a compact, high performance alternator

A feedback carburetor helps maintain control of the air/fuel mixture. The engine also has an exhaust gas recirculation device (EGR) to reduce NOx, and a catalytic converter for further reduction of the exhaust gas emissions. The new 1.5-liter engine has a high altitude compensator for emissions control which is activated at 3,900 feet or above.

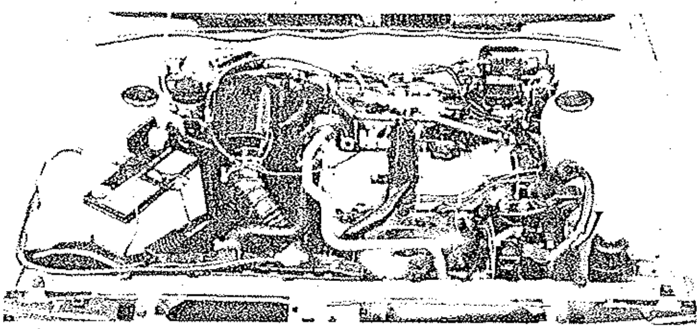
Improvements in the 2.6-liter engine

A feedback carburetor has been added to the basic (non-turbocharged) 2.6-liter engine as well as new valve calibration. Also, the throttle return mechanism has been redesigned for reduced pedal effort and a better performance feel. Available on domestically built vehicles only.

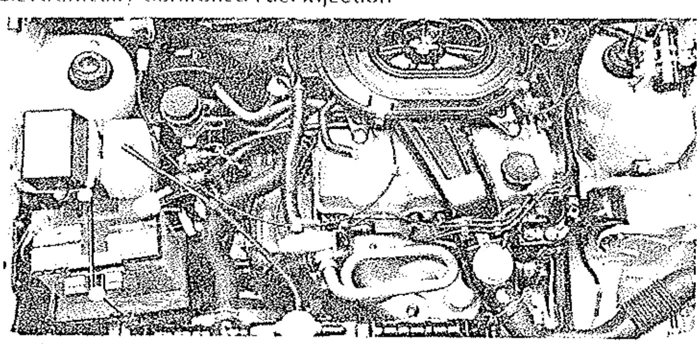
'85 DODGE ENGINEERING



1.5-liter 2-barrel carburetor Mitsubishi-built 4-cylinder engine



1.6-liter turbocharged Mitsubishi-built 4-cylinder engine with Electronically Controlled Fuel Injection



2.0-liter Mitsubishi-built Vista 4-cylinder engine

Turbochargers and Electronically Controlled Fuel Injection for 2.6- and 1.6-liter engines

Both the 2.6-liter engine that is standard in the Conquest and the 1.6-liter engine that is optional on certain 1985 Colt models are equipped with turbochargers and Electronically Controlled Fuel Injection for extra power, performance and efficiency. The turbochargers are built by Mitsubishi and are designed for the optimum performance of these two engines. Twin-point throttle-body fuel injection with numerous sensors and an electronic control unit provide excellent air-fuel mixtures for maximum combustion efficiency with the turbocharger. (See pages 9 and 10 for more information.)

Specifications

Engine type: 4-cylinder, overhead camshaft MCA-JET, transverse-mounted

Displacement . . . . 1.5 liters (91 CID)

Bore and stroke . . . . 75.5mm x 82mm (2.97" x 3.23")

Combustion chamber design . . . . Hemispherical

Compression ratio . . . . 9.4 to 1

Carburetor 2-barrel

Ignition system . . . . Electronic

Specifications

Engine type: 4-cylinder, overhead camshaft MCA-JET, turbocharged ECI

Displacement . . . . 1.6 liters (97.1 CID)

Bore and stroke . . . . 77mm x 86mm (3.03" x 3.39")

Combustion chamber design . . . . Hemispherical

Compression ratio . . . . 7.6 to 1

Fuel system . . . . Electronically controlled fuel injection—turbocharged

Ignition system . . . . Electronic

Specifications:

Engine type: 4-cylinder, overhead camshaft MCA-JET, transverse-mounted

Displacement . . . . 2.0 liters (122 CID)

Bore and stroke . . . . 85mm x 88mm (3.34" x 3.46")

Combustion chamber design . . . . Hemispherical

Compression ratio . . . . 8.5 to 1

Carburetor 2-barrel

Ignition system . . . . Electronic

Specifications:

Engine type: 4-cylinder, overhead camshaft, MCA-JET, transverse-mounted (Available on domestically-built vehicles only)

Displacement . . . . 2.6 liters (156 CID)

Bore and stroke . . . . 91mm x 98mm (3.59" x 3.86")

Combustion chamber design . . . . Hemispherical

Compression ratio . . . . 8.7 to 1

Carburetor 2-barrel

Ignition system . . . . Electronic

Specifications:

Engine type: 4-cylinder, overhead camshaft, MCA-JET, turbocharged ECI

Displacement . . . . 2.6 liters (156 CID)

Bore and stroke . . . . 91mm x 98mm (3.59" x 3.86")

Combustion chamber design . . . . Hemispherical

Compression ratio . . . . 7.0 to 1

Fuel system . . . . Electronically controlled fuel injection—turbocharged

Ignition system . . . . Electronic

'85 DODGE ENGINEERING

ELECTRICAL FEATURES

New maintenance-free, low profile batteries

These compact, lightweight batteries pack plenty of engine-cranking power for fast engine cranking and have ample reserve power for normal electrical system demands. Rugged battery-case construction contributes to durability and long life.

The lower profile of these batteries is designed to provide adequate clearance . . . in line with the lower hood profile of certain 1985 Dodge models.

The batteries do not require the addition of water for the duration of their normal service life of 38 to 40 months. Each battery is completely sealed except for gas-venting ports at the top—there are no filler caps. The battery posts and the battery test indicator are on top of the battery.

The 335-ampere battery is standard on the majority of U.S.-built 1985 Dodge models.

The 400-ampere battery is standard on Daytona, 600 4-door Diplomat, and on 600 2-door and convertible models with turbo-charged engines. This battery is ideal for cold climates where extra cold cranking power and power reserve are needed. Strontium alloy, used for the battery grids in this battery, reduces gas formation at normal charging voltages, has higher resistance to the effects of over-charging, and minimizes current leakage from the battery. Special envelope-type separators prevent decaying grid material from shorting out adjacent plates. The tough battery case is designed to hold a large volume of electrolyte above the battery plates.

The 500-ampere battery is Dodge's best and most powerful factory-installed original-equipment battery. This battery is ideal for cars driven in extremely cold climates and cars with many electrically powered options. A durable, two-piece polypropylene battery container, and heavy-duty plates are examples of heavy-duty construction features.

(NOTE: See car sections of this book for these and other battery availabilities.)

Maintenance-free batteries of a different configuration and amperage are standard on Colt Premier, Colt Vista and Conquest only.

Battery test indicator

A battery test indicator is standard on all Dodge batteries built in the U.S. The test indicator shows green when the battery is above 75 percent of being fully charged, black when recharging is required, and yellow when water level is low—or, in the case of maintenance-free batteries, the battery should be replaced.

Halogen headlamps

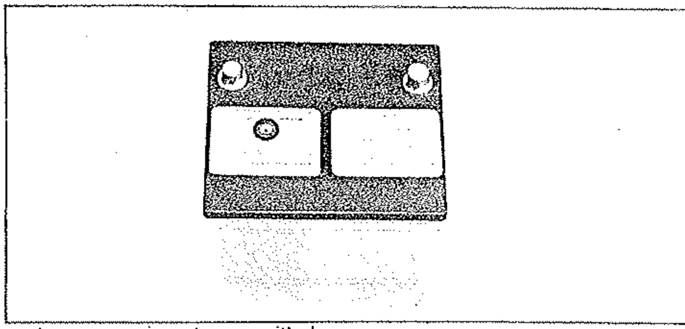
Halogen headlamps provide a 25 percent increase in high-beam output over ordinary sealed-beam headlamps without requiring any increase in electrical power. The halogen light is "whiter" than the light of ordinary headlamps. Halogen headlamps are standard on all Dodge cars built in North America. The plastic halogen headlamps introduced on Caravan in 1984, are now also used on Aries, Lancer, Daytona and 2-door Dodge 600 models. In a four-lamp configuration, the use of plastic represents a savings in car weight of over three pounds; in a two-lamp configuration, over two pounds.

Copper core spark plugs

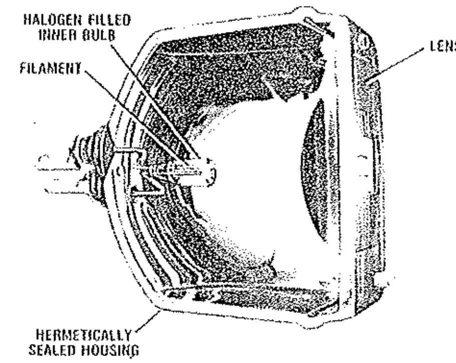
All U.S.-built 4-cylinder and V-8 Chrysler engines have copper core spark plugs with a longer nose than conventional spark plugs. This design resists spark-plug fouling which could lead to misfiring.

25-way wedge lock electrical connectors

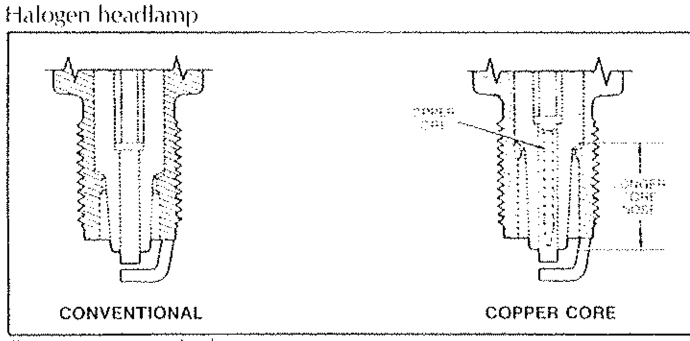
Two positive-locking 25-way multi-terminal wedge lock connectors are used for the front wiring on all Dodge front-wheel drive models. One 25-way connector joins the body and instrument panel wiring and is easily accessible near the left side cowl; the second 25-way connector is used for steering column wiring. These connectors make wiring assembly quick and accurate, while providing positive connections and easy servicing.



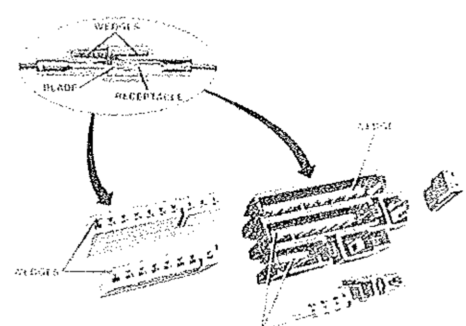
Maintenance-free, low-profile battery



Halogen headlamp



Copper core spark plugs

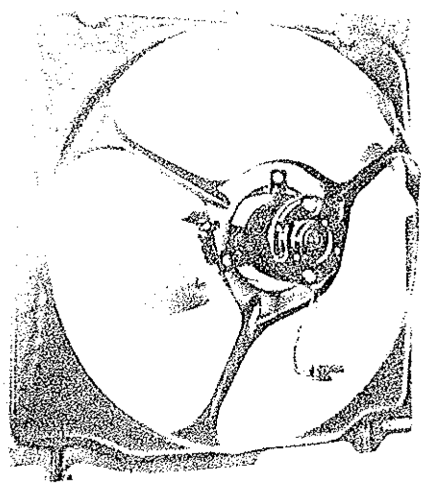


25-way wedge lock electrical connector

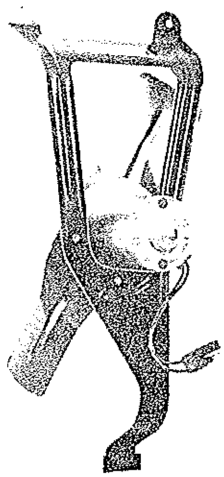
40-way electrical connector

Dodge Diplomat uses a 40-way electrical connector that bolts together through an opening in the dash panel. The connector features solid-blade terminals for positive locking, reliable assembly and excellent electrical performance.

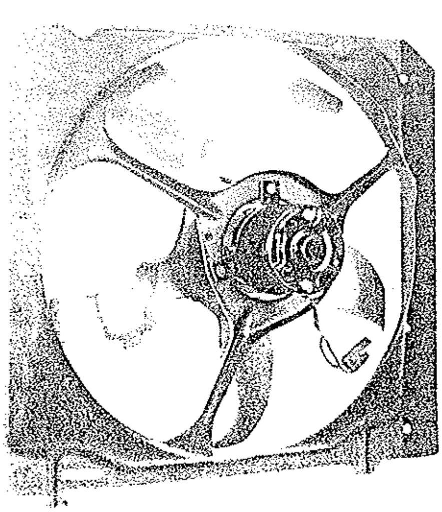
ENGINE COOLING SYSTEMS



2.2-liter engine cooling fan module with air conditioning



2.2-liter engine cooling fan module without air conditioning



2.2-liter EFI Turbocharged engine cooling fan with air conditioning

Engine Cooling Fan Types (Domestic Cars Only)

Item	1.6-liter[1] Omni Charger		2.2-liter non-turbo Omni Charger		2.2-liter All except Omni Charger		2.2-liter EFI Turbo		2.6-liter	318 5.2-liter V-8
	With Air Cond.	Without Air Cond.	With Air Cond.	Without Air Cond.	With Air Cond.	Without Air Cond.	With Air Cond.	Without Air Cond.[4]	With or without Air Cond.	With or without Air Cond.
Fan diameter (inches)	—	12.6[2]	14.2	12.6	14.2	[illegible]	14.0	14.2	14.2	20
Number of Blades Material	—	4 plastic[2]	2 metal	4 plastic	2 metal	2 metal	5 metal	2 metal	[illegible] metal	5 metal
Motor Wattage	—	110[2]	130	110	130	65	160	130	130	[3]
Shroud Material	—	Metal[2]	Metal	Metal	Metal	Metal	Metal	Metal	Metal	Plastic

[1] Air conditioning not available with 1.6-liter engine. Field-installed air conditioning not recommended.
[2] Used on Caravan with 2.2-liter or 2.6-liter engine in 49 states with or without air conditioning. In California, fan blades are metal.
[3] When air conditioning is installed, the ratio of the fan to crankshaft revolutions is 1.25 – without air conditioning it is 1.10.
[4] Shelby uses 5-blade module both with and without air conditioning.

The cooling fan for Dodge in-line V-8 and 4-cylinder engines is driven by the engine and is located at the front of the engine just behind the radiator. On transverse-mounted 4-cylinder engines, the cooling fan is driven by an electric motor. That's because the fan and radiator must face forward to receive the cooling air, while the engine faces to the right. Coolant circulates to the radiator and back to the engine through large hoses.

Electric motor-driven fans

On transverse-mounted Dodge 4-cylinder engines the electric motor drives the engine fan only on demand. On all EFI, EFI turbocharged engines and those with feedback carburetors, the fan is computer controlled to improve fuel economy. The control is based on coolant temperature and engine speeds. On air conditioned cars with an electric fan the fan runs whenever the air conditioner is on.

Mini-Module fan assembly for 2.2 liter engine

A lightweight design Mini-Module fan assembly is used with the 2.2-liter engine on cars not equipped with air conditioning. This small assembly provides cooling comparable to the previous more bulky system, requires less space, is 2¾ pounds lighter and requires less amperage to operate the motor (4 amperes versus 7 amperes for the previous motor). The assembly includes a 2-blade metal fan, lightweight 4-ampere motor and three-leg steel mounting bracket.

2.2-liter engine cooling fan with air conditioning (non-turbo)

A higher performance engine radiator cooling fan system is used on all cars with a 2.2-liter engine and air conditioning. This system includes the following:

- 16-inch metal shroud
- 14.2-inch diameter, 2-blade metal fan
- 130-watt electric motor

This cooling system improves performance of the air conditioner, maintains lower underhood temperatures (less chance of vapor lock), improves fuel economy, and requires less current to operate than the system used prior to the 1984 model year. The turbo uses a 5-blade fan 14-inches in diameter and a 160-watt electric motor.

Coolant recovery system

All Dodge engines have a coolant recovery system for their radiators. This system eliminates coolant loss caused by expansion of the coolant when the engine is operating under hot conditions—or when the car is driven off an expressway for a rest stop and the hot engine is shut off. Instead of overflowing onto the ground, the expanding coolant is piped into a reserve tank to be recycled into the radiator when the engine cools down.

This system also minimizes the necessity of removing the radiator pressure cap to check the coolant level. Instead, the coolant can be checked simply by observing the fluid level in the reserve tank.

Special coolant with aluminum heads

Engines with aluminum cylinder heads are provided with special antifreeze coolant at the factory to protect against corrosion. These engines also have aluminum water-pump housings.

FUEL DELIVERY, EXHAUST AND EMISSIONS SYSTEMS

EFI and EFI turbo engine fuel delivery system
In these engines, the fuel delivery system is the link between the fuel tank and the fuel injection system. Actually, the link is composed of two separate circuits which form a closed loop. The first portion of the loop (the fuel supply circuit) delivers a constant flow of fuel under pressure. Since the engine only requires a small portion of the delivered fuel, the remainder of the fuel (when pressure opens the fuel pressure regulator) is returned to the fuel tank through the second portion of the loop—or fuel return circuit.

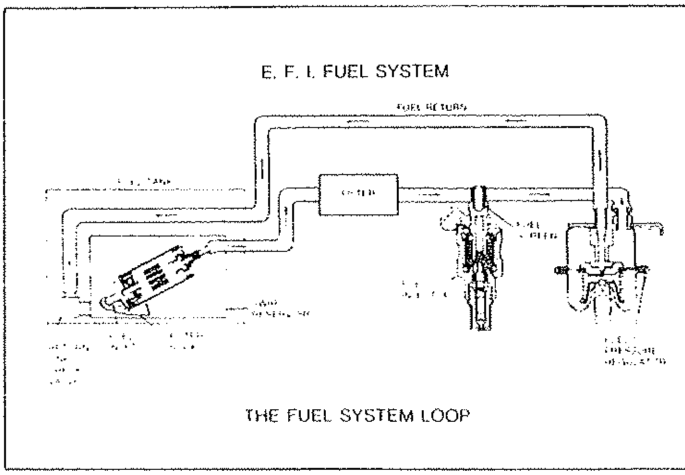
Fuel systems have collision and rollover protection
All Dodge models have fuel-system features that provide protection against leakage during side, rear and angular front impacts. These features include sturdy fuel tank retention with longitudinal and lateral reinforcements, strong fuel tanks, reinforcements in rear body structural members and a rollover valve at the top of the fuel tank to prevent fuel leakage during a full 360-degree rollover.

Electronically fuel injected engines have an automatic shut down relay to deactivate the fuel pump on any impact that is sufficient to stop the engine.

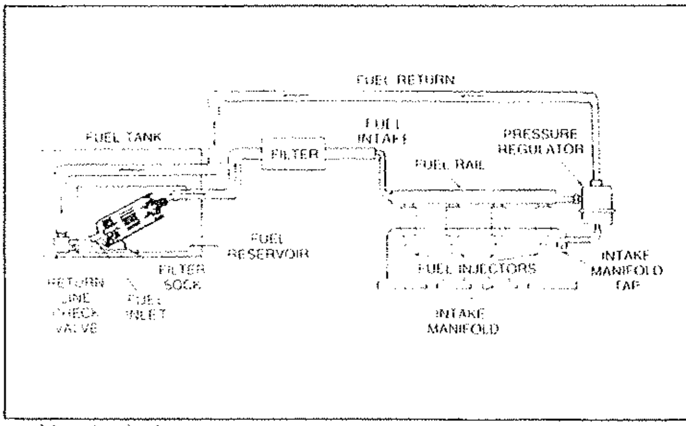
Deceleration fuel shut-off system improves fuel economy, deters after-running
Dodge models equipped with the 2.2-liter engine, manual transaxle and feedback carburetor have a deceleration fuel shut-off system that provides an extra lean air-fuel mixture for improved fuel economy. This system utilizes a solenoid-operated valve that opens during deceleration and introduces additional air into the carburetor idle system to lean-out the air-fuel mixture. This system is also a deterrent to engine after-running when the ignition is turned off.

Fuel tank location
On all models except the rear-wheel drive Diplomat, the fuel tank is located under the car beneath the rear seat—where it's forward of the rear suspension and between the bodyside rails—giving it protection in the event the car is subjected to rear or side impacts. The lightweight aluminum filler tube is sealed by a screw-type filler cap. A 5" nylon tether on all Dodges except Charger models attaches the filler cap to the car—so you don't leave the cap behind.

Dodge models meet stringent emissions regulations and provide better driveability and fuel economy.
Some of the more significant components in this respect are:
- Tamperproof idle fuel-air mixture adjustment and choke adjustment screws on carburetors. After these adjustments are made at the factory, plugs are installed to prevent tampering with the factory adjustments.
- On some models Electronic Feedback Carburetor System with 3-way catalyst for maintaining ideal air-fuel mixtures and less exhaust emissions. Driveability, performance and fuel economy are improved with this system.
- Maintenance-free evaporative emissions charcoal canisters.
- A single catalytic converter is used with Dodge 4-cylinder engines to reduce exhaust emissions.



Single-point fuel injection system



Multi-point fuel injection system

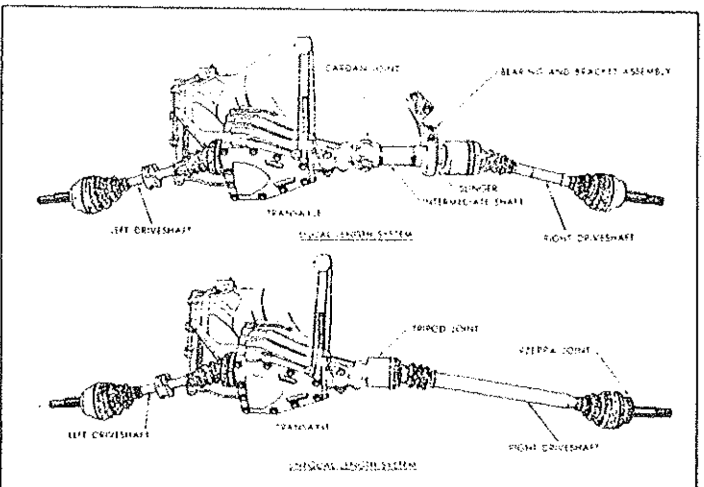
3-way catalytic converter
A 3-way catalytic converter that oxidizes all three exhaust emissions—hydrocarbons, carbon monoxide and nitrogen oxide—is used on all U.S.-built Dodge engines.

The catalytic converter consists of a stainless steel shell that houses a ceramic honeycomb monolithic element that is coated with a noble metal catalytic agent. The monolithic element is separated from the shell by a stainless steel mesh, which helps to protect the honeycomb element by providing a spring-type shock-absorbing mounting. The noble metal catalyst in the converter causes a heat-releasing reaction to occur in the exhaust gases that oxidizes and reduces emissions to meet clean-air standards. Unleaded gasoline must be used with all catalytic-converter systems as leaded gasoline would coat the catalyst, rendering it ineffective.

Dodge EFI engines have a smaller catalyst than carbureted engines. Air is injected by an aspirator (instead of an air pump) which reduces engine load and improves fuel economy. More precise fuel delivery than is possible in carbureted engines promotes better cold starting.

Dodge EFI turbocharged engines require no air pump or aspirator for air injection, because injectors are located at the intake port of each cylinder. Fuel control is even more precise than in the single-point EFI engines.

FRONT-WHEEL DRIVE, MANUAL TRANSAXLES, TRANSMISSIONS



Drive shaft comparison

Front-wheel drive owes its increased popularity to the new breed of small, fuel-efficient cars which are designed with maximum space efficiency and interior roominess. Engine, transaxle and drive shafts are all up front with front-wheel drive. There is no need for the big floor tunnel that accommodates the transmission and drive shaft in a front-engine car. So, there's more room inside for passengers.

Other benefits of front-wheel drive

Excellent traction and directional stability are two other benefits of front-wheel drive. The traction benefit results from engine and transaxle weight bearing on the front driving wheels, which gives the tires a good grip on the road in most driving conditions. The up-front weight also gives the car fine directional stability, especially in crosswinds.

Front-wheel drive power flow

Power from the engine flows through the transaxle (transmission, transfer gear and axle differential gears). The differential gears divide the power between the left and right drive shafts, which are geared to the front-wheel hubs. The front wheels are bolted to the hubs.

Chrysler-built 4-speed manual transaxle

This transaxle has high-capacity synchronizers for smooth, low-effort shifting into all forward gears. Shift quality has been even further improved for 1985 by relocating the selector pivot bracket from the crossmember to the transmission. This eliminates potential shift blocking during cornering, gives a more positive shift feel and makes for quieter operation. Fourth gear has an overdrive ratio of 0.88 to 1 for highway fuel economy. This 4-speed transaxle is standard on Omni and Charger models with the 1.6-liter 4-cylinder engine; standard on Aries models with the 2.2-liter 4-cylinder engine; not available otherwise.

Chrysler-built 5-speed overdrive manual transaxle

Dodge's 5-speed manual transaxle gear ratios provide the driver with quick acceleration response and feel.

Gear	
First	3.29
Second	2.08
Third	1.45
Fourth	1.04
Fifth	0.72

Caravan uses a different set of gear ratios that assure fuel economy in this family-type wagon. The overdrive ratio is 0.72 for all models, including Caravan, in order to stretch highway fuel economy. This overdrive ratio also reduces engine rpm and results in quieter engine operation.

All forward gears are synchronized for smooth, quiet and easy shifting. For 1985, shifting with the 5-speed manual has been improved by added and/or redesigned isolators for the selector and cross-over cables. . . and by reduced clearances between several shift components. All add up to quieter, smoother shift operation.

(See Specifications section of this book for Overall Top Gear Ratios.)

Shift indicator light

On non-turbocharged U.S.-built 1985 Dodge models and Colt E 3-door with manual transmissions, an instrument panel-mounted shift indicator light will come on to signal the driver when to upshift for improved fuel economy.

Equal and unequal length drive shaft systems

On turbocharged models, Dodge uses an equal length drive shaft system. It features short, solid interconnecting drive shafts of equal length on the left and right side. The unequal length drive shaft system, used on non-turbocharged front-wheel drive models, has a short, solid interconnecting shaft on the left side with a longer tubular interconnecting shaft on the right.

The equal length system eliminates torque steer. In other words, when you step on the gas, the wheels will not turn to the left or right—and directional stability is thereby enhanced.

MANUAL TRANSAXLES AND TRANSMISSIONS

Colt 4-speed manual transaxle

An economy 4-speed manual transaxle is standard on the Colt E 3-door hatchback, but is not available on other Colt models. The fourth gear has an overdrive ratio (0.856 to 1). This transaxle has a floor-mounted, short-throw shifter for quick, positive shifts and is fully synchronized in all forward gears for smooth, quiet shifting.

New Colt 5-speed manual transaxle

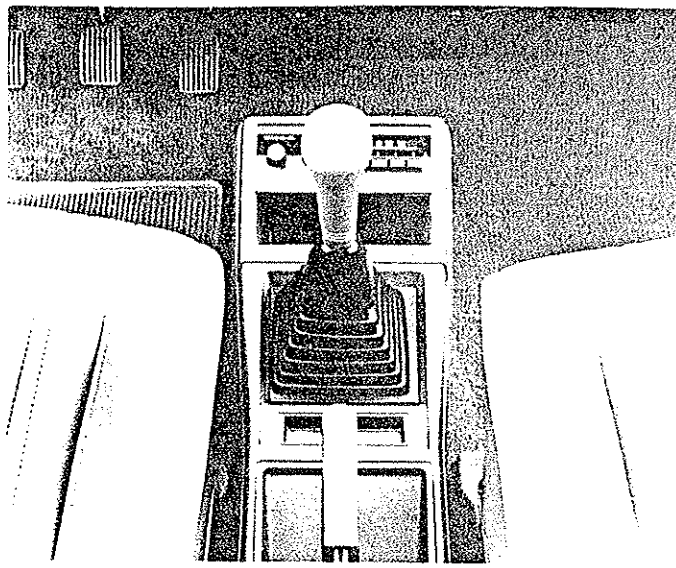
For 1985, Mitsubishi Motors Corporation has introduced a new 5-speed manual transaxle that is standard on all Colt models, except the base model 3-door hatchback (on which it is not available). The new transaxle provides a more positive shift feeling and minimizes the transmission of vibrations from the engine to reduce interior noise levels. The fifth gear has an overdrive ratio of 0.855. This transaxle also has a floor-mounted short-throw shift lever and is fully synchronized in all forward gears for smooth, quiet shifting.

Conquest 5-speed manual transmission

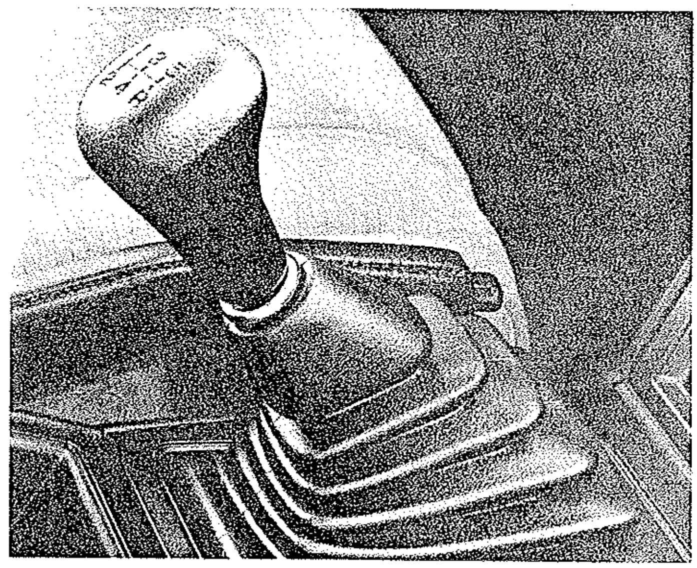
A 5-speed manual transmission is standard on Dodge Conquest, which has a front-engine, rear-wheel drive power train. The fifth gear in this transmission has an overdrive ratio (0.856 to 1) that can increase gasoline mileage considerably during standard highway driving.

This gear ratio reduces engine speed—and that results in less engine wear, less engine noise and better highway fuel economy. This transmission is synchronized in all forward gears for smooth, quiet shifting. A short-stroke shift lever with the shift pattern shown on the knob makes shifting easy and quick.

NOTE: See "Transaxles" and "Transmissions" in car line sections of this book for gear ratios.



New 5-speed manual Mitsubishi transaxle



Conquest 5-speed manual shifter

AUTOMATIC TRANSAXLES, TRANSMISSIONS

Lockup torque converter with V-8 models
TorqueFlite on Diplomat V-8 models is equipped with lockup torque converter to help improve fuel economy. The torque converter is used for power and smoothness while accelerating in first and second gears until road speed reaches about 40 miles an hour. Then, after the transmission upshifts from second to third gear, the clutch automatically locks up the torque converter so there is a direct mechanical drive through the transmission. Normal slippage in the converter is eliminated, engine speed is reduced and fuel economy is improved. The lockup clutch disengages automatically during part-throttle or full-throttle downshifts, and when the vehicle is slowed to a speed slightly below lockup speed.

TorqueFlite dependability
TorqueFlite has proved to be so dependable that there are no recommendations for band adjustments, clutch friction material replacement, or changing of the transmission fluid or fluid filter under normal conditions.* Also, the converter is liquid cooled for quiet operation and durability and the converter blades are brazed for strength. Leak tests are performed on every TorqueFlite transmission during production.

*Service is required if the vehicle is used frequently for trailer towing or regularly operated under severe driving conditions.

TorqueFlite with rear-wheel drive models
Dodge Diplomat models are equipped with a wide ratio TorqueFlite automatic transmission that provides good through-gear acceleration and when combined with lower rear axle ratios, improves fuel economy, when compared with previous TorqueFlite models.

TorqueFlite automatic
Chrysler Corporation's quality-built TorqueFlite automatic transmission has been proved by more than 40 billion miles of satisfactory service in big, heavy cars. It has been designed into a TorqueFlite automatic transaxle for the fuel-efficient front-wheel drive cars offered by Dodge. The TorqueFlite automatic transaxle—like the TorqueFlite transmission—has three forward-speed gears, a torque converter for smooth agile acceleration and a precision automatic shifting assembly for high-quality shifts.

For 1985, several improvements have been made in the Chrysler-built TorqueFlite automatic transaxle for increased reliability:

- For improved connection of the drive plate to the torque converter, four longer bolts are used in place of the three short bolts previously used.
- Impeller blading is computer designed for improved fit to the impeller shell. This assures better brazing which, in turn, improves converter performance.
- A shouldered impeller-to-front cover joint prevents weld spatter from being blown into the converter—so that the reliability and durability of both the converter and transaxle are improved.

Wide-ratio gears improve TorqueFlite transaxle performance
This automatic transaxle (used on certain 1985 Dodge models) has higher numerical first and second gear ratios than the TorqueFlite transaxle used prior to the 1984 model year. These higher gear ratios improve performance without affecting fuel economy. This transaxle also has a part-throttle kickdown for extra mid-throttle acceleration, which eliminates the necessity of flooring the accelerator and racing the engine to obtain a quick burst of power for passing.

Colt automatic transaxle
An imported 3-speed automatic transaxle with electronic control is available as an option on Colt models except the Colt E 3-door. This transaxle has a torque converter for good getaway acceleration and a precision valve body for smooth, automatic shifting.

4-speed overdrive automatic transmission available on Conquest specialty coupe
An optional 4-speed overdrive automatic transmission is designed to give Conquest excellent acceleration through the gears, smooth automatic shifting and good highway fuel economy in overdrive. The transmission will upshift into overdrive only at speeds above 37 mph (60 kilometers per hour). An overdrive mechanism between the torque converter and transmission gears and a lock-up clutch in the torque converter function when the transmission is upshifted into fourth gear (0.68 to 1 ratio) for maximum fuel economy. An overdrive control switch mounted on the gear selector knob can be operated to prevent the transmission from shifting into overdrive—it then functions as a 3-speed automatic. Move the switch to the overdrive position and the transmission again operates as a 4-speed automatic.

A kickdown control in the accelerator pedal linkage downshifts the transmission from 4th to 3rd gear, from 3rd to 2nd, or from 2nd to 1st gear (depending on car speed and engine load) when the accelerator pedal is floored.

The transmission will upshift through all four gears when the shift selector is in D (DRIVE), but will operate only in second gear in 2, and only in low in 1. Gear ratios are: 1st, 2.45; 2nd, 1.45; 3rd, 1.00; 4th. 0.68; and reverse, 2.18.

NOTE: See "Transaxles" and "Transmissions" in car line sections of this book for additional information.

TIRES AND WHEELS

Radial ply tires can help improve fuel economy—according to tests at Chrysler Corporation proving grounds

Because radial ply tires have less rolling resistance than bias ply tires, they help improve fuel economy—and because of their sidewall construction, they provide excellent traction and roadability. Radially constructed tires have flexible sidewalls that allow them to flex independently of the tread—so the tread stays on the road surface even when the car is cornering.

About metric tire sizes

The standard tire for Dodge Diplomat is given in the metric size P205/75R15. This tire size designation conforms with the International Standards Organization (ISO). Here's how to read tire size: "P" means passenger car; 205 indicates a nominal tire width of 205 millimeters or 8.07" (25.4 millimeters to an inch; therefore, 205 divided by 25.4 = 8.07"); the 75 is the tire height-to-width ratio percentage or aspect ratio (this means the height of the tire is 75% of the tire width); 70 means the height is 70% of the tire width; 50 means the height is half the width. The "R" means radial ply tire; and the 15 indicates the wheel rim diameter in inches. (This dimension is not converted to millimeters.) The letters H and V on performance tires are European speed designations. These letters occur just before the R for radial as in 195/70HR14.

Steel-belted, radial ply tires are standard on all Dodge models

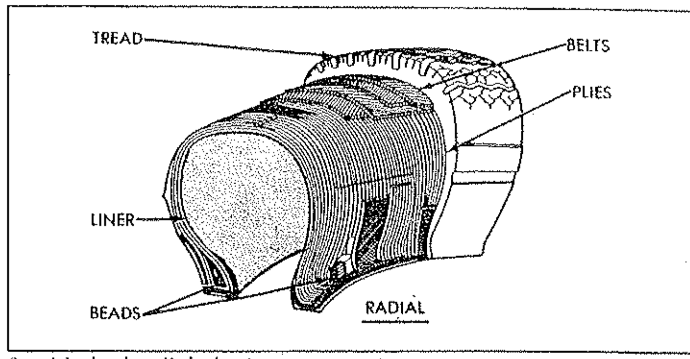
Dodge installs steel-belted radial ply tires on all car lines at the factory as standard equipment. The steel-belted tires have long life expectancy and high resistance to road hazards—and are tougher than the glass-belted, radial ply tires used previously on some models.

Depending on model, these tires are either of an all-season (mud- and snow-rated) design or a handling performance oriented design.

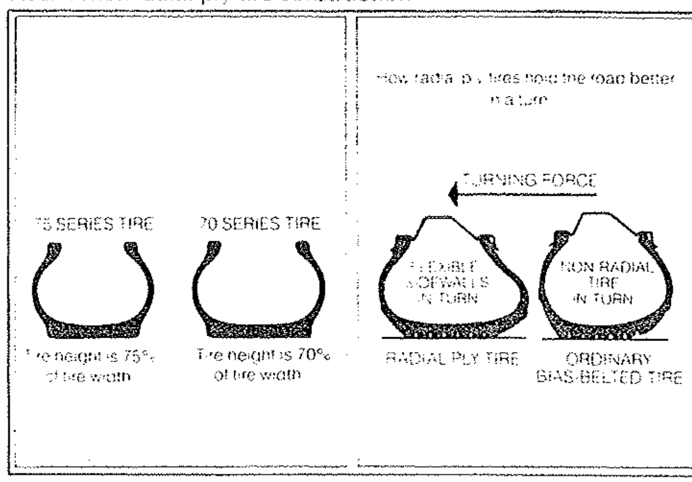
All-season tires possess a unique combination of ride and handling characteristics, while also providing improved tread life, lower rolling resistance for improved fuel economy, and excellent all-weather traction.

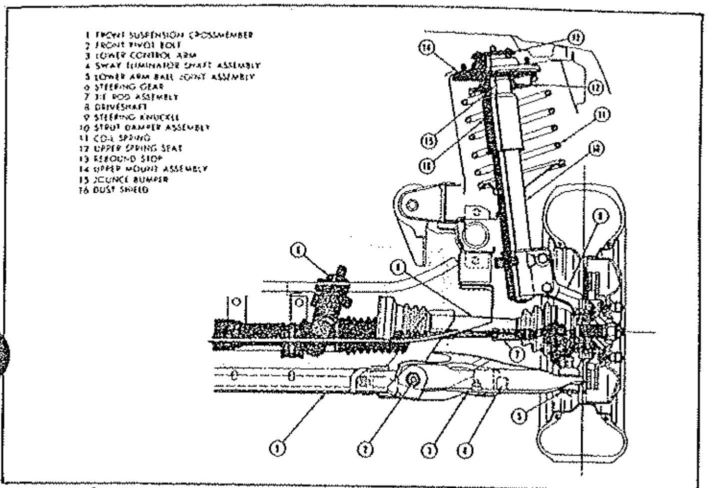
Performance tires are designed to match the enhanced qualities of sport-oriented vehicles.

NOTE: See tire charts in car line section of this book for tire sizes and availabilities.

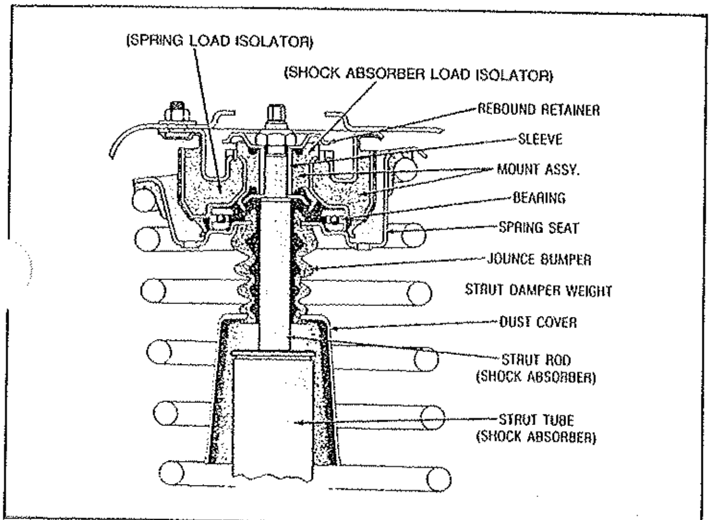


Steel-belted radial ply tire construction

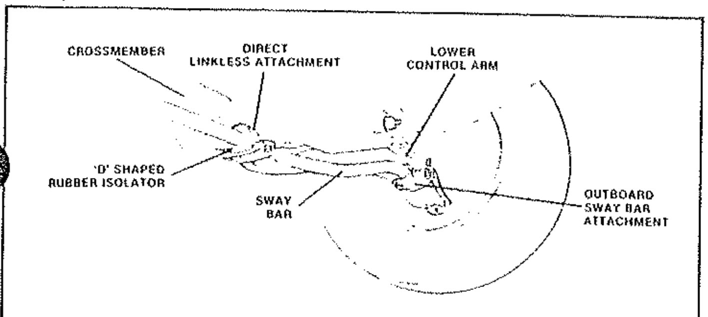




Iso-Strut front suspension



Dual-path Iso-Strut mount



Linkless antisway bar

DODGE SUSPENSION SYSTEMS

Dodge uses several different suspension systems, designed and tailored to car size, power train configuration and ride objectives. The newer fuel-efficient, front-wheel drive Dodges all use some version of a strut-type, independent front suspension and trailing-arm-type rear suspension with coil springs at all wheels. These suspension systems are ideal because of their space efficiency, simplicity, light weight and low service requirements.

The midsize, rear-wheel drive Diplomat models use transverse-mounted torsion-bar front suspension and multi-leaf rear suspension.

The Caravan family-size wagon has strut-type front suspension with coil springs and multi-leaf rear suspension.

Iso-Strut front suspension
(All Dodge models except Diplomat)

Iso-Strut front suspension provides the compliant ride and good control Dodge engineers wanted in front-wheel drive car lines. Shock-absorbing struts mounted within low-rate coil springs and a front antisway bar combine to provide a comfortable, controlled ride. And compliant rubber bushings isolate suspension components from the car body to further cushion vibrations and damp sounds.

A small negative scrub radius is designed into the suspension-steering geometry to aid directional stability and straight-line braking. This geometry helps to reduce steering loads in the event of a tire failure, uneven braking or when one or more wheels run on loose road surfaces while the other wheels are on solid pavement.

Front-wheel struts (shock absorbers) are connected directly to the steering knuckles and to the car structure—so upper control arms are not required with this suspension. Lower control arms are connected to the steering knuckles through permanently lubricated ball joints.

Dual-path upper Iso-Strut mountings

The upper mounts for the Iso-Strut front suspension have dual paths for isolating noise and vibration—one path receives and damps shock absorber loads, the other path receives and damps spring loads. The dual-path design is thus effective in isolating shock absorber and spring generated disturbances from the vehicle. Available on all front wheel drive models except Charger and Omni.

The front suspension is fully independent, but with a one-piece strut assembly tower in the body, jounce bumpers, and isolator rubber bushings.

Gas-pressurized struts and shock absorbers are included on certain front-wheel drive models equipped with heavy-duty or sport handling suspension. They provide several advantages over previous suspension struts and absorbers:

- improved ride quality with a reduction in harshness
- better adaptation to more kinds of road surfaces
- reduced control loss from fluid aeration and heat build-up
- reduced noise transmission
- improved handling

Linkless antisway bar, front-suspension geometry

A linkless antisway bar, attached directly to the car's front structural crossmember and to the front-wheel lower control arms, provides more resistance to car roll and sway than the previous link-type antisway bar—and it permits use of lower rate front coil springs for a softer, more comfortable ride. Previously, the antisway bar was attached to the crossmember by links which deflected under stress and reduced roll stability, which was compensated for by stiffer coil springs. In addition, front suspension and steering geometry were changed to give the driver improved and more easily controlled steering responses in all driving situations. The linkless antisway bar is standard on all 1985 front-wheel drive U.S.-built Dodge models.

DODGE SUSPENSION SYSTEMS (Continued)

Trailing-arm rear suspension
All Omni models and all Charger models (including Charger 2.2 and Shelby Charger) use one type of trailing-arm rear suspension; Daytona, Dodge 600, Lancer and Aries models use another type. Both systems are highly compatible with the Iso-Strut front suspensions used in these cars. Both suspension systems are space efficient, lightweight and have excellent ride and handling characteristics.

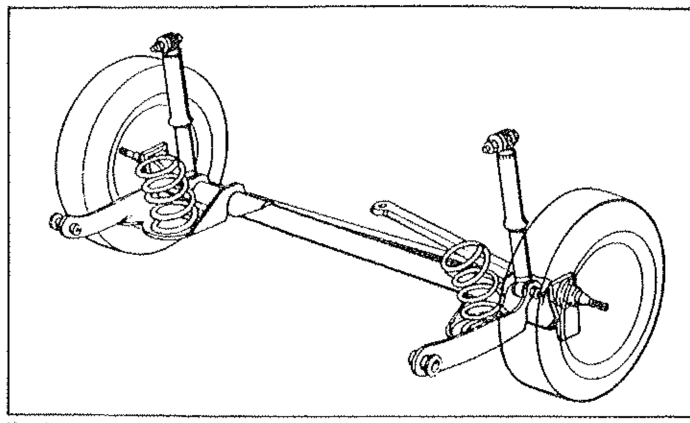
Rear suspension for Omni models and Charger models (including Charger 2.2 and Shelby Charger) is semi-independent with shock-absorbing struts mounted within the coil springs. A crossmember that connects the trailing arms also serves as a rear antisway bar.

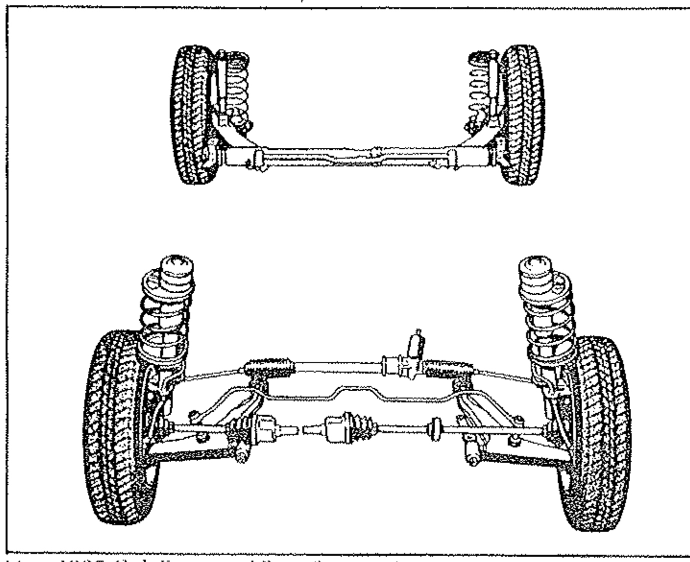
The Daytona, Lancer, Dodge 600 and Aries rear suspension consists of shock absorbers mounted adjacent to the low-rate coil springs. This suspension utilizes a beam axle (inverted U-section) which carries the wheel spindles at each end. Two trailing arms connect the axle and suspension assembly to the car structure. A torsion-tube housed inside the U-section axle provides anti-roll control. Lateral ride control is supplied by a track bar attached at pivot points on the beam axle and a body-mounted bracket.

Caravan suspension
Dodge Caravan has a dual-path Iso-Strut front suspension and a multi-leaf (4 leaves per spring) rear suspension. The rear leaf suspension has the inherent stability best suited for the extra passenger and cargo loads Caravan is designed to carry. A heavy-duty version of this suspension is optional.

Colt suspensions
MacPherson-type strut front suspension with shock absorbers mounted within coil springs is standard on all Colt models. This suspension system has been modified for 1985 to provide a smaller curb-to-curb turning radius, and for easier adaptation to transmission and engine variations. Lower control arm rear bushings have asymmetrical spring characteristics for improved stability and improved ride. Colt's rear suspension is "U" shaped with two trailing arms and struts (shock absorbers) and has been modified for 1985 with rubber bushings and progressive rate coil springs provide for a more compliant ride. The trailing arms carry the spindles for the rear wheels. The struts are mounted adjacent to the coil springs with lower mounts bolted to the trailing arms and upper mounts bolted to the car structure. A Sport Suspension with higher rate springs, front and rear antisway bars and gas-pressurized front shock absorbers is included in the GTS and Turbo Packages available on the Colt DL 3-door hatchback only, and on the Premier 4-door sedan.

Conquest and Colt Vista suspensions
Although designed for different purposes, Conquest and Colt


Dodge 600 and Aries rear suspension

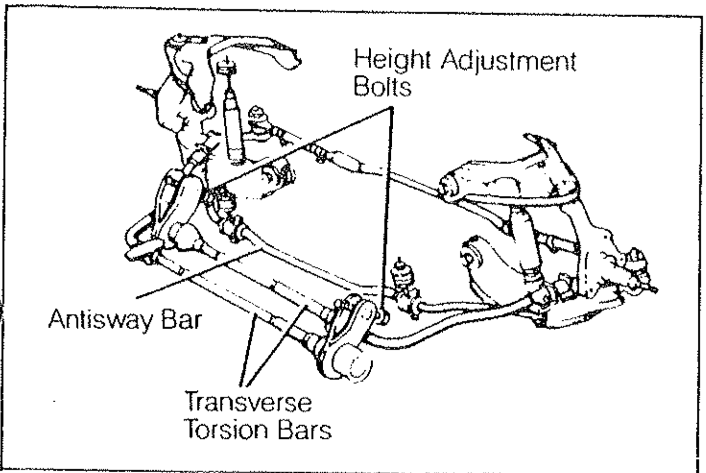

New 1985 Colt Front and Rear Suspension

front suspension and trailing-arm rear suspension with coil springs and shock absorbers. Both vehicles have front and rear antisway bars to add stability to the ride.

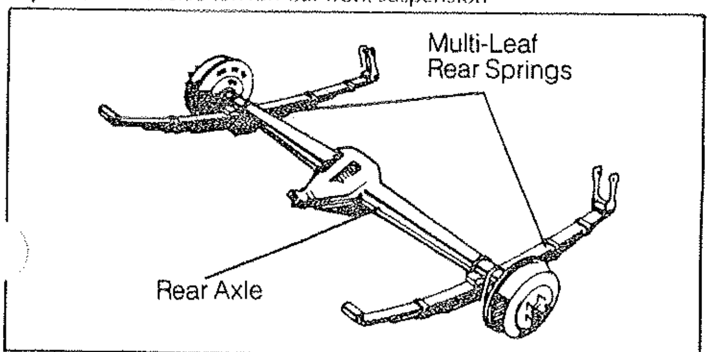
Conquest's suspension is a special handling sport version with heavy-duty components front and rear. Special to the front suspension is the high-caster, low-trail I-arm configuration. Rear suspension has control-arm pivots both in front of and behind the drive shafts for increased directional stability and lower roll center. Gas-filled shock absorbers, front and rear, improve rolling stiffness for good steering response and ride.

Other heavy-duty and sport handling suspensions
There are many standard and optional suspension systems available—specifically tailored to the differing needs the many Dodge models—from simple heavy duty to sport handling and special sport handling. (See car line sections of this book for suspension details by car model.)

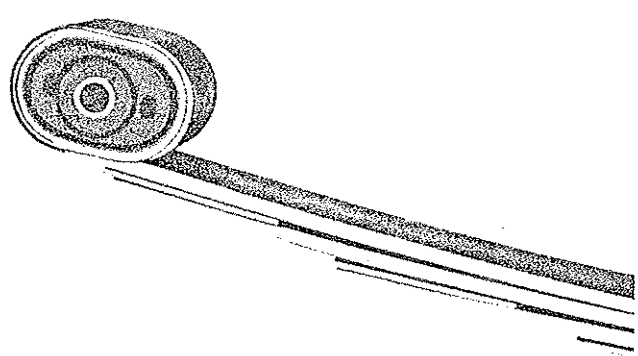
TORSION-BAR FRONT, LEAF-SPRING REAR SUSPENSION



Diplomat transverse torsion-bar front suspension



Diplomat leaf-spring rear suspension



Rear-spring front-eye bushing

Diplomat's bigger car ride

Dodge Diplomat models have transverse-mounted torsion-bar* front suspension and multileaf rear suspension. Drive a 1985 Diplomat and you will experience the ride and comfort traditionally associated with a bigger car. It's a ride with qualities people want–stability, smoothness and handling control.

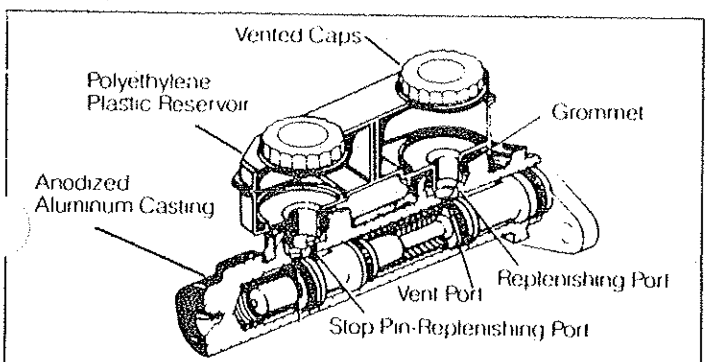
These qualities are achieved with a unique Dodge suspension. Isolated transverse torsion-bar front sprints are mounted ahead of the front wheels and Iso-Clamp multileaf rear springs are all rubber-isolated from the car structure. The transverse front torsion bars and multileaf rear springs contribute to ride stability, smoothness and handling responsiveness; the rubber isolation quiets the ride and increases the degree of smoothness.

*Dodge's unique transverse torsion-bar front suspension is patented.

Car height adjusters are built into the Dodge front torsion-bar suspension system. Torsion bars can be adjusted to keep the front end of the car at the proper height. Turning an adjusting bolt raises or lowers the front of the car.

Iso-Clamp rear suspension utilizes large rubber cushions between the spring clamps and axle housings to reduce road noises and axle vibrations before they can be transferred to the leaf springs. Sounds and vibrations are further reduced by rubber isolators in the rear-spring eyes–where the spring mounts to the car structure. The rubber isolator in the front eye of the spring is oval shaped to increase fore-and-aft cushioning.

BRAKES



Dual braking systems are used on all Dodge car lines and models. These braking systems have two separate master cylinders in one housing to control two separate hydraulic braking systems. In case of damage to one of the braking systems, the other will continue to function independently to bring the car to a stop. A large diameter master cylinder increases the power boost on all front-wheel drive Dodges built in North American.

BRAKES

Dual diagonal braking systems are used on the front-wheel drive Dodges and on Conquest. One hydraulic system controls the brakes for the left-front and right-rear wheels; the other system controls the right-front and left-rear wheel brakes.

Dual diagonal brakes will provide 50 percent of the system's full stopping power if ever either side of the system should fail to operate.

Dual front-rear braking systems—On Diplomat models only, one hydraulic system operates the front-wheel brakes, and another system operates the rear-wheel brakes. Either system will stop the car should the other system become inoperative.

A brake system warning lamp glows red when the brake pedal is applied and pressure is low in either hydraulic system. This lamp also glows when the parking brake is applied.

Front-wheel disc brakes are used on all Dodge car lines and models because of their ability to dissipate heat quickly and to provide excellent front-to-rear brake balance for superior directional stability. Also, front brakes receive a higher percentage of the braking load because of the forward shift of car weight when brakes are applied.

Front-wheel drive models use single-piston calipers and semi-metallic brake linings for the disc brakes. The semi-metallic brake lining is designed to maintain positive braking under high temperature conditions and to provide good wear characteristics. Disc brake rotors are made of damped iron for quieter, high-performance braking. These rotors do not transmit or amplify sound as undamped iron rotors do.

Self-adjusting rear drum brakes are standard on all Dodges. These brakes adjust automatically for proper lining-to-drum clearance. Periodic brake adjustments are not required.

Power brakes

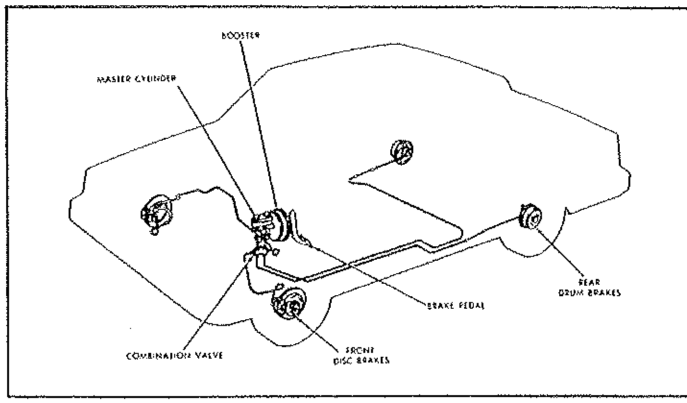
Power brakes are standard on all Dodge models. A power booster relieves the driver of much of the braking effort and brake-pedal travel is reduced with power brakes.

Parking brake

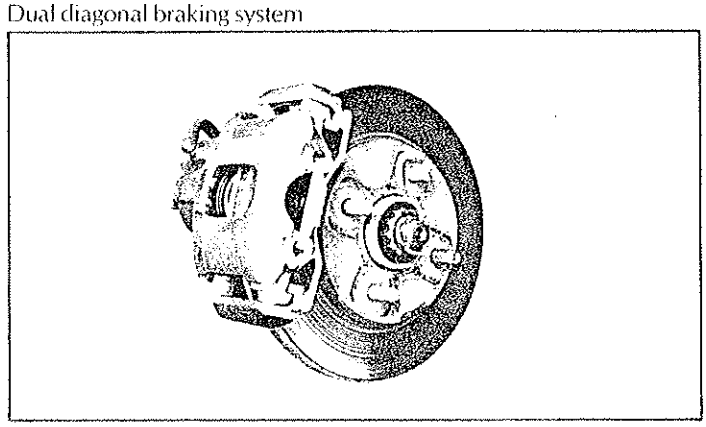
Cables from the parking brake lever or the foot-operated pedal apply the rear brakes for parking.

Caravan brakes

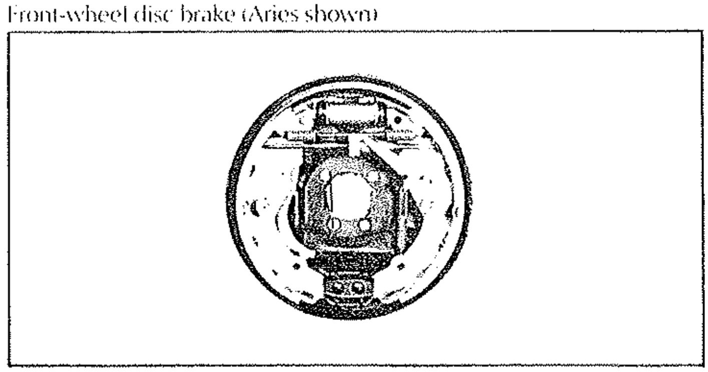
The front-wheel drive Caravan brake system which includes 60-mm calipers and semi-metallic linings with noise suppression gaskets for the ventilated front-wheel disc brakes, and a 9 x 2.5-inch servo brake with automatic adjuster for the rear-wheel drum brakes. A load-sensing, dual proportioning valve adjusts the braking force according to vehicle load, to maintain proper front-to-rear balance. Caravan uses a diagonally split, dual braking system with a Chrysler-designed dual master cylinder and single-diaphragm power brake booster.



Dual diagonal braking system



Front-wheel disc brake (Aries shown)



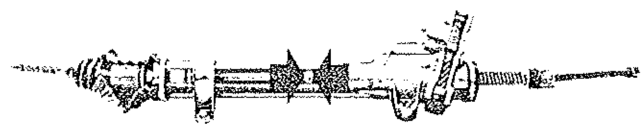
Self-Adjusting Rear Drum Brake

Conquest skid control brake system option

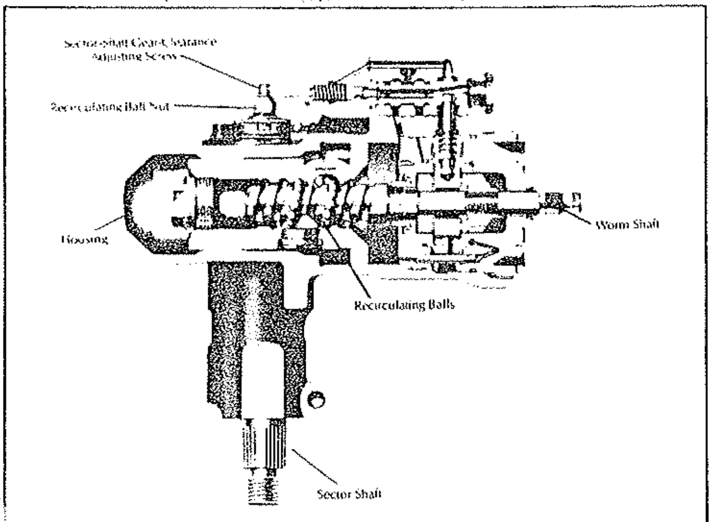
This option reduces the possibility of rear wheels locking up and skidding on slippery road surfaces. (See Conquest Data page 11 for more details.) Four-wheel ventilated disc brakes with a 9-inch diameter booster are standard on Conquest.

Colt Turbo Package brakes

Colt with this Package gets ventilated front disc brakes for better cooling and a larger power brake booster.



Aries rack-and-pinion steering gear and linkage



Recirculating-ball steering gear (Diplomat, Conquest)

STEERING AND STEERING GEARS

Rack-and-pinion steering—all front-wheel drive models
This sporty steering is engineered for low turning effort, good returnability and excellent stability. A negative scrub radius, designed into the steering geometry, improves directional stability and straight-line braking by making the steering less susceptible to forces transmitted by road irregularities and braking action. Rack-and-pinion steering is used on all Dodge front-wheel drive models.

Recirculating-ball steering gear—rear-wheel drive models
Steel recirculating-ball bearings reduce friction in the steering gear when the steering wheel is turned. This steering gear is used on Diplomat and Conquest models.

Power steering
A power unit greatly reduces the effort required to turn the front wheels. And a lower gear ratio used with power steering provides faster steering response—less turning of the steering wheel is required for any specific turn.

Power steering pump
A "cold-prime" power steering pump provides power for steering at lower engine rpm when starting the car in cold weather. This pump design is necessitated by the reduced cold-start engine speeds Dodge is using to promote good fuel economy. A pump speed reduction of 1,050 rpm has been achieved while maintaining the same initial power steering response in cold start-ups. In addition, a smaller displacement pump is used with all Dodge front-wheel drive models. This smaller pump uses 25% less engine power than the previous pump, effecting a significant improvement in fuel economy without any loss in power assist for steering.

Quick ratio steering
Omni GLH, Shelby Charger, Daytona, 600 and Lancer have a precision rack-and-pinion power steering available with a quick ratio (14 to 1) and a high-flow rate power steering pump. This combination provides quick steering response and precise steering control. (See car model sections of this data book for availability of steering components.)

BODY CONSTRUCTION

Tough Unibody construction*—body sheet metal and structural members welded into one strong, unitized framework—is engineered into all North American-built Dodge models. The welded body members contribute their combined strength to the strength of the total vehicle. Structural strength extends throughout the entire body.

Another form of construction—used on many U.S. cars—is to bolt a separate full frame to the underside of the car body.

*NOTE: Diplomat models also use a structural crossmember to support the power train and front suspension components. This structure is bolted to the car body structure through thick rubber isolators for sound deadening.

Body aperture panel development has contributed to improved body alignment and assembly and more precise door-opening dimensions. The aperture panel—which consists of the rear quarter panel, quarter roof panel, and sections of the door opening frames, roof side rail and bodyside sill—is a one-piece precision stamping. Previously, these body panels were welded together, making it difficult to maintain precise engineering tolerances.

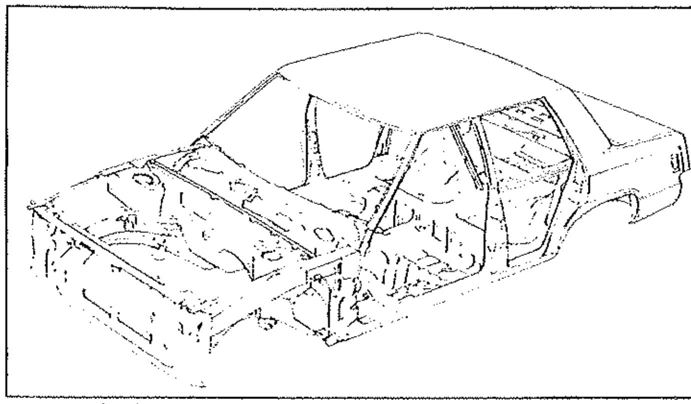
Box-section construction is used for windshield pillars, roof side rails, bodyside sills, door opening frames and lower body structural members where extra strength is required. This steel construction is used on all Dodge car lines.

Inner and outer roof panels are bonded and welded together for double panel strength. Roof bows, roof side rails and headers are formed of box-sections when inner and outer steel panels are welded together.

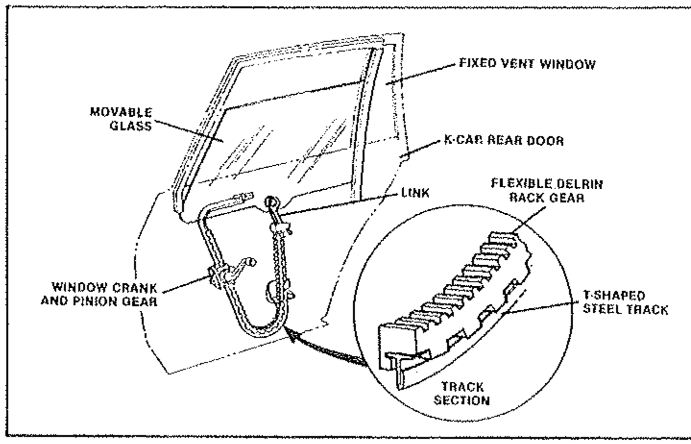
Roll-down rear window mechanism

A specially designed roll-down window mechanism is used for the rear doors in Dodge Lancer, 600 and Aries 4-door models. The mechanism is an ingenious rack-and-pinion gear set made of tough injection-molded Delrin 100 plastic. The Delrin rack gear is flexible and slides along a T-shaped steel track to move the glass up or down as the window crank turns the pinion gear. The window glass is fastened to the sliding rack gear by a link. Total up-and-down window travel is ten inches. This new assembly weighs 60% less than a traditional window mechanism. A small fixed window is used in the door behind the sliding glass with this new mechanism.

Counterbalanced hood for all Dodge Lancer, 600, Daytona and Aries models has spiral springs to help lift the hood and hold it open in the raised position. The hood prop is eliminated.



Aries Unibody

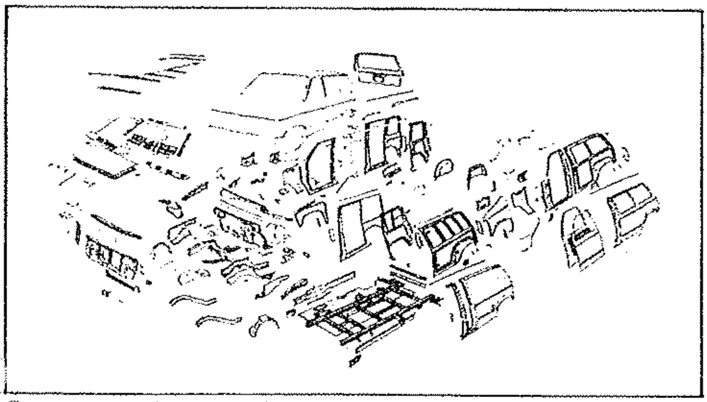


Aries roll-down rear window mechanism (4-door sedans and wagons only)

ANTICORROSION TREATMENTS

Extensive anticorrosion treatments protect all Dodge cars. Protection against corrosion begins with the bare sheet metal on every North American-built Dodge. Even before the metal is formed into body panels, it is coated to protect against corrosion. Galvanized steel is used extensively for many body panels. And still other panels are coated with zinc-rich primer, which retains its integrity even after forming or stamping.

When assembled, each car body is thoroughly cleaned and coated with special chemicals in Chrysler Corporation's 7-step dip-and-spray process for additional protection against all forms of corrosion.



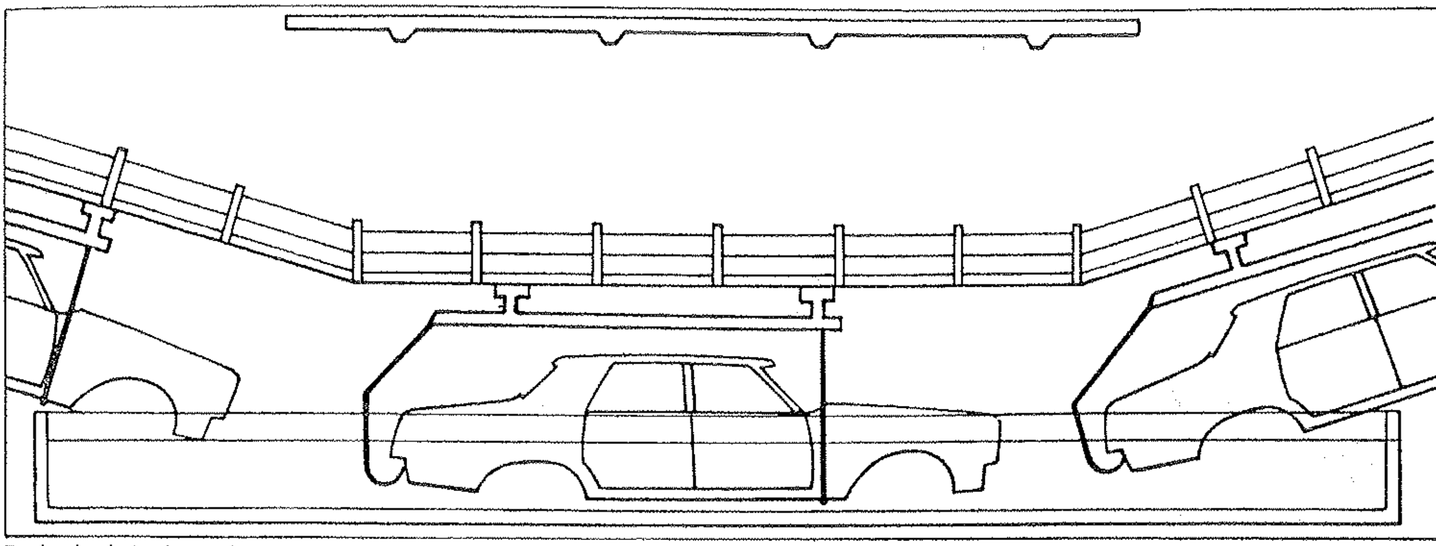
Caravan corrosion protection

Dodge protects against corrosion by the extensive use of galvanized, galvannealed, Zincrometal, and zinc-plated steel materials, fiberglass, plastics, and special paints and primers.

In addition, special emphasis is being placed on isolating exterior ornamentation and moldings from body metal to prevent electrolytic action and corrosion between dissimilar metals. Lower body protection on cars is provided with special stone-chip resistant urethane coating. Chrome plating of bright trim and fasteners has been improved. Door hinges are bolted onto the body and are galvanized or zinc plated on selected models. The door half is covered with zinc-rich paint. Transparent tape on windshields, back windows and liftgate moldings help prevent paint film breakthrough— particularly at the corners. Underbody and underhood components receive a variety of primers and other treatments to prevent corrosion.

To protect against exterior cosmetic corrosion, all of the 1985 North American-built Dodge cars will receive a clear crystal coat of acrylic over the regular paint treatment. This coating resists abrasions better than paint and provides a higher gloss.

ANTICORROSION TREATMENTS



Dodge body in dip-and-spray process

Durable polypropylene plastic front-wheelhousing splash shields are very effective in protecting front-end parts from corrosive splash. These splash shields are standard on all North American-built Dodge models.

7-step dip-and-spray treatments used on most models

1. Cleaning dip. Unibody is dipped and the complete body is sprayed with cleaning solution, then drained.

2. First rinse dip. Unibody is dipped and the complete body is sprayed in warm water to rinse off the cleaning solution, dirt and impurities.

3. Second rinse dip. Unibody is again dipped and sprayed for thorough rinsing, then drained.

4. Phosphate dip. Unibody is dipped and sprayed in corrosion-resistant phosphate, then drained.

5. Cold rinse. Unibody is dipped and sprayed in cold water, then drained.

6. Acid rinse. Unibody is dipped and sprayed in a conditioner rinse for best paint adhesion and corrosion resistance.

7. Primer dip. Unibody is dipped approximately 22" deep in corrosion-resistant primer. Primer flows inside all lower body panels.

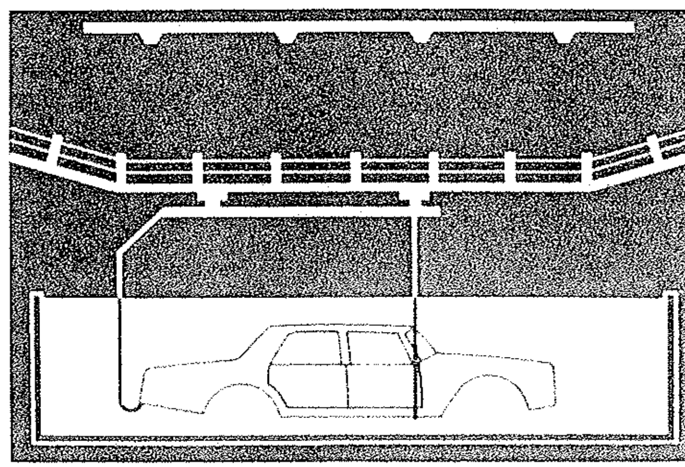
NOTE: For **Charger, Omni** and **Lancer** models in **Step 7.** Uniprime* E Coat is a total immersion substitute for the regular primer process.

For **Diplomat,** all 7 steps are a spray process.

Durable, high-gloss finish coatings

The finish coatings on all North American-built Dodges have a high-gloss finish with a lasting luster that results from applying acrylic enamel over epoxy primer. After the anti-corrosion treatments, each Unibody is sprayed with two coats of tough epoxy primer. Then it is oven-baked and sanded. Finally, two coats of acrylic dispersion enamel are applied and oven-baked to a glossy luster. Acrylic enamel is buffable and highly resistant to chipping, fading and corrosion.

*Uniprime is a trademark of PPG Industries, Inc.



Full immersion anti-corrosion protection

High-gloss crystal coat maintains sparkling luster

For 1985, 100% of Dodge's new cars, including Caravan will receive a clear crystal coat of acrylic over a highly pigmented base coat. The clear crystal coat not only resists abrasions better than paint, it also provides a higher gloss appearance.

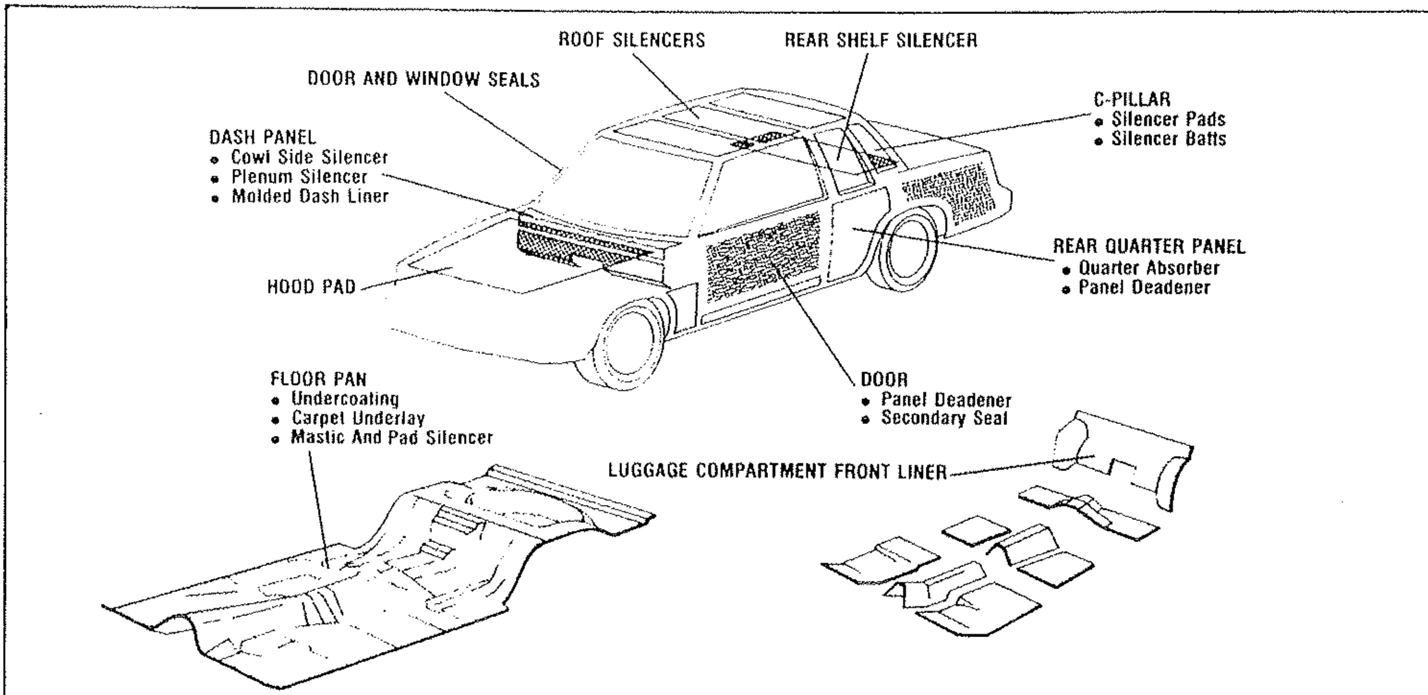
The clear resin crystal is applied over the body color wet-on-wet, and when oven-baked, provides a deep, high-gloss finish with a "just-waxed" look. The combined acrylic color enamel and clear coat are 17.6% thicker than the standard 3-coat acrylic enamel with equal or better durability. Automatic-spray-booth and hand-spray coatings are applied as follows:

1. Automatic spray–acrylic enamel color
2. Manual spray–acrylic enamel color
3. Automatic spray–clear crystal coat
4. Manual spray–clear crystal coat

After spraying, the enamel and clear crystal coat are oven-baked to a hard, durable, lustrous finish.

A pearl coat, available with some colors, [illegible] coat applied over a special base color which [illegible] glamour flecks of mica.

DODGE ENGINEERS QUIET RIDE WITH HIGH-TECH SOUND DEADENERS



Sound-deadening materials (Materials vary somewhat from car line to car line)

Dodge engineers use the latest electronic methods to help engineer "quiet" into the ride. Experimental cars are driven on typical roads where recordings are made of the interior noise levels in the front and rear seats. These sources are then treated with appropriate sound-reducing materials.

Absorptive blankets, cotton-fiber pads and sound-deadening mastic are applied to specific areas where they are the most effective silencers. Rubber seals and sealers are used elsewhere.

Dodge uses innovative approaches and the latest technology to control noise, vibration and harshness and produce cars with the highest degree of quietness in Dodge's history. Daytona and Caravan models, for example, incorporate the most extensive use of acoustic cavity stuffers and mastic patches ever installed in new Dodge vehicles.

For 1985, on most front-wheel drive Dodge models, a cable core wire insulator is used for the pedal throttle to reduce throttle system vibration. On all Dodge 1985 models air intake ducts have been redesigned to reduce air induction noise. All EFI engines have a quieter in-tank electric fuel pump. Lighter piston pins on all 2.2-liter engines...and lighter connecting rods on the carbureted 2.2-liter engines...also reduce second order vibrations.

Recent improvements in sound deadening include:
- Absorptive door silencer pads
- Improved door frame-to-side-glass sealing
- Auxiliary seal of transaxle shift cable at dash
- Integral seals on windshield moldings
- Body-mounted door weatherstrips
- Upper secondary door seals
- Tertiary seal on front door pillar of Daytona
- New dashliner and steering column silencer
- Hatchback secondary seal
- Spare tire stowage compartment cover and seal
- Improved air cleaner silencing on 2.6-liter engine
- Air injection system resonator on 2.2-liter engine
- Molded air intake ducts on 2.2-liter engine
- Power hop damper on 2.2-liter turbo with manual transaxle
- Isolated throttle pedal
- Better engine isolation provided by improved mount alignment
- Softer exhaust hanger
- Automatic idle speed control on fuel-injected engines
- Dual-path front suspension strut isolators

NOTE: No one model or car line incorporates all of the changes listed above.

SOUND DEADENERS AND QUIET RIDE

How Dodge achieves smooth, quiet running

As many as 30 features are designed into Dodge passenger cars to reduce noise, vibration and harshness,and to provide outstandingly quiet passenger compartments. This remarkable degree of quietness in a 4-cylinder front-wheel drive car represents an engineering advance involving the highest technology in automotive sound deadening. While the following list is based on the Dodge 600, similar sound deadening features are used on other Dodge models.

1. Linkless front antisway bar and lower-rate coil springs
2. Low-rate front suspension control arm strut bushings
3. Low-rate front suspension strut upper mounts
4. Low-rate rear suspension trailing arm pivot bushings
5. Low-rate rear suspension springs
6. Rear suspension spring lower seal isolators
7. Soft engagement rear jounce bumpers
8. Low-rate track bar bushing
9. Premium rear shock absorbers
10. Reduced tire pressure (26 psi)
11. Special ride tire (P185/70R14)
12. Improved dash liner alignment and coverage
13. Improved heater and air conditioner sealing
14. Improved steering column silencer
15. Bulkhead disconnect flange
16. Improved under-instrument panel silencer
17. Cowl side silencers
18. Air conditioner resistor-block sealing
19. Windshield pillar sealing at belt area
20. Windshield pillar molding seals
21. Windshield pillar secondary door seals
22. Windshield molding seals
23. Larger secondary door seals
24. Shoulder harness retractor seals
25. Rear seat belt retractor seals
26. Butyl tape on sill pinch welds
27. Repatterned luggage compartment front liners
28. Rear wheelhouse stuffers
29. Molded rear wheelhouse silencers
30. Mastic patches on inner sheet metal holes

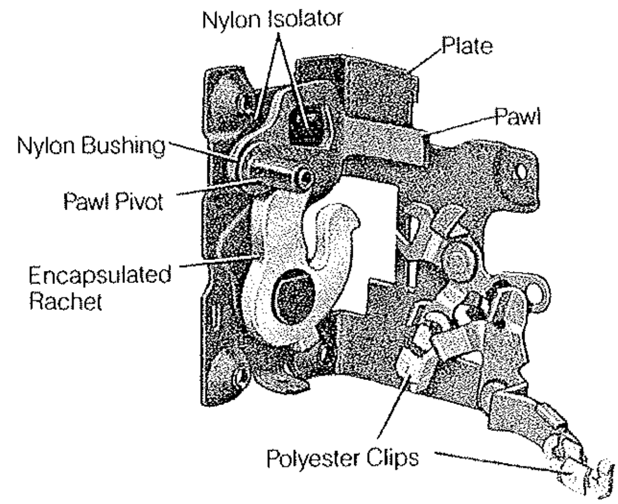
How silencers quiet the passenger compartment

a) The transmission of vibrations and harshness from road irregularities to the passenger compartment is reduced.
b) The acoustical barrier between the engine compartment and the passenger compartment is improved.
c) Acoustical barriers and panel deadening are improved at inner sheet metal, underbody, and wheelhouse areas.
d) Wind turbulence at the windshield and windshield moldings is reduced.
e) Acoustical sealing of the body is improved.

4-cylinder idle roughness reduced (with optional automatic transmission)

The following innovative engineering designs in Dodge 600 and Aries models reduce idle roughness that is inherent with 4-cylinder engines:

1. The mass of the front bumper is supported with rubber that is "tuned" to reduce body vibration.
2. A "tuned" dynamic absorber is added to the steering wheel hub to reduce steering column vibrations.



Quiet door latch

Softer engine mounts reduce vibrations

A low-rate front engine mount is used in Aries and Omni models to reduce engine vibration periods and idle roughness.

Molded sponge rubber door seals

These sponge rubber seals are installed between the door and door trim panels on Aries and Dodge 600 models. These seals are very effective in keeping out road noises.

High-tech design door seals

Daytona uses a primary seal that completely encircles the door; a secondary seal that runs from the beltline up the windshield pillar and follows the roof drip rail to the top of the B-pillar; and a tertiary seal in the windshield pillar area. This triple-seal arrangement virtually eliminates wind noise and water leaks in these locations. Front doors of the Caravan have both the primary and secondary type seals described above.

ENGINEERED TO REDUCE MAINTENANCE REQUIREMENTS

Dodge engineers are engaged in a continuing search for new ways to reduce required maintenance on all Dodge vehicles. Improvements in design and materials have led to the development of the following low-maintenance features:

1. Engine oil and filter. Dodge recommends changing engine oil for North American-built cars every 7,500 miles or 12 months, whichever occurs first in normal service. Engine oil filter changes (in normal service) are recommended at 15,000-mile intervals or every 12 months, whichever occurs first.

On turbocharged engines, the interval for the oil and oil filter change is every six months or at 7,500 miles. The interval for Colt and Conquest turbocharged models is 3,000 miles. Non-turbocharged Colt models, 7,500 miles.

2. Automatic transmission (transaxle) fluid and filter. TorqueFlite automatic has no recommended fluid or filter changes in normal operation. Only in severe service, as in trailer towing, is it necessary to change the fluid and filter–and then only every 15,000 miles.

3. Chassis lubrication. Down through the years, Chrysler Corporation engineers have reduced the number of required lubrication fittings in the chassis for North American-built cars. Now, only ball joints and steering linkage have lube fittings–and they need to be lubricated only at 30,000-mile or 3-year intervals, whichever occurs first under normal driving conditions.

4. Electronics. Electronic ignition–no ignition points or condenser to replace. Electronic voltage regulator–no moving parts to fail: maintenance-free. Electronic spark control system–no mechanical spark-advance flyweight system to wear out and replace. An on-board diagnostic feature is designed into the engine control electronics on all 2.2-liter Electronic Fuel-Injected and 2.2-liter Turbo EFI engines to reduce dependence on special tools and off-board testers when troubleshooting electronic systems. Also, a self-testing device is incorporated into Dodge's electronic instrument clusters for quick diagnosis and servicing.

5. Spark plugs. Dodge recommends spark plug changes every 30,000 miles with unleaded gasoline under normal driving conditions for North American-built cars. All spark plugs have copper cores, longer cores and longer core insulators for greater resistance to spark plug fouling and reduced maintenance.

6. Battery test indicator. Standard on all batteries used in Dodges built in North America. Lets you check battery condition at a glance. Green dot–means battery is fully charged; black dot–means battery needs recharging; yellow dot–means battery needs water–or replaced in the case of the maintenance-free battery.

7. Maintenance-free batteries. All 1984 domestically built Dodge cars use maintenance-free batteries. (See Engineering page 20 for ampere ratings of different batteries and availabilities.) These batteries do not require the addition of water during their normal service life–38 to 40 months. Each battery is completely sealed except for gas-venting ports at the top–there are no filler caps. The battery posts and the battery condition indicator are on top of the battery.

8. Maintenance-free heavy-duty battery (500-ampere). Does not require the addition of water during the life of the battery. (Optional on Aries, Lancer, Dodge 600, Diplomat and Daytona.)

9. Engine antifreeze coolant. Initial drain, flush and refill interval is 3 years or 52,000 miles for North American-built cars. Colt, Colt Vista and Conquest recommended service is 2 years or 30,000 miles, whichever comes first.

10. Self-adjusting brakes. Rear-wheel brakes adjust themselves on all Dodge cars–no periodic adjustments required.

11. Steel-belted, radial ply tires. The steel belts make the tires stronger for greater resistance to road hazards and longer life. Steel-belted, radial ply tires are standard on all Dodge cars.

12. Hydraulic valve lifters in the Dodge 318 CID V-8 and innovative hydraulic mini-lash adjusters in the 2.2-liter 4-cylinder engine are quiet operating and do not require adjustments.

13. Materials more durable. Steel bodyside sills, door panels, quarter panels and many other body panels on North American-built Dodges are galvanized, galvannealed, treated with Zincrometal or zinc-plated for protection against corrosion. Expanded use of fiberglass, plastics, and special paints and primers also contribute to longer service life. All car bodies are also treated in Dodge's 7-step dip-and-spray baths for extra protection. Aluminized-steel tailpipes and a stainless steel radiator cap have the ability to resist corrosion and last for years.

14. Multi-groove alternator and water pump drive belt on all 1.6-liter and 2.2-liter 4-cylinder engines reduce the need for periodic belt tensioning and provides extended belt life.

15. Camshaft drive belt cover on the 2.2-liter 4-cylinder engine is designed for efficient improved sealing against road dust and splash as well as for easy removal and reinstallation.

16. Fusible links, which protect the electrical system should overloads occur, have been relocated to the left front shock absorber tower on Aries, Lancer, Daytona and Dodge 600 models for easier accessibility.

17. Wiring and vacuum lines are carefully routed through the engine compartment to eliminate diagnostic confusion for mechanics and to promote easier servicing.

18. Advanced design seals for optional air conditioning systems on North American-built cars are less susceptible to leaks and offer longer service life than the O-ring seals used previously. Steel and/or aluminum nitrile rubber-coated gaskets are used in place of O-rings to prevent leakage of refrigerant gas or liquid.

Where replacement parts are required, Dodge recommends that only genuine MOPAR parts be used to ensure best service results.

SOME BASICS ABOUT METRICS

The metric system, once adopted, is relatively simple. It's a system like our monetary system, where everything is upgraded in tens. In our monetary system, ten pennies equal one dime, ten dimes equal one dollar, ten dollars equal a ten-dollar bill, ten ten-dollar bills equal a hundred-dollar bill and so forth.

Converting our present system of measurements to the metric and vice versa, however, is not so simple. The conversion results in numerous fractions and decimals. So, the period of transition–the period of becoming acquainted with what the metric system means in terms of our present system–can cause some confusion and still require exposure to both systems. Once we become familiar with what the metric measurements and qualities represent in terms of our system, the use of the metric system is made easier.

Water boils at 212 degrees Fahrenheit–100 degrees Celsius–at sea level

Perhaps, when you were in school, you were familiarized with two temperature scales–Fahrenheit and Centigrade. Centigrade is metric. The Fahrenheit scale was invented in 1709 by Gabriel Daniel Fahrenheit; the Centigrade scale was invented by Anders Celsius in 1742. Today the name Centigrade is replaced by the name Celsius in honor of Anders Celsius.

In the Fahrenheit scale, water freezes at 32 degrees and boils at 212 degrees. In the Celsius (Centigrade) scale, water freezes at 0 degrees and boils at 100 degrees. (All readings are for sea-level atmospheric pressure.)

With the adoption of the metric system, we must become familiar with the Celsius scale and its equivalents in our present Fahrenheit scale. Here's how to convert from one to the other.

Fahrenheit to Celsius:

Fahrenheit temperature minus 32 degrees times 5/9 equals Celsius.

For example:

212 degrees–32 degrees = 180 degrees x 5/9 = 100 degrees Celsius.

Celsius to Fahrenheit:

Celsius temperature times 9/5 plus 32 degrees equals Fahrenheit.

For example:

100 degrees x 9/5 = 180 degrees + 32 degrees = 212 degrees Fahrenheit.

SOME COMMON MEASUREMENTS AND THEIR EQUIVALENTS

1 pint = 0.473 liter 1 quart = 0.946 liter 1 gallon = 3.785 liters	1 liter = 2.113 pints 1 liter = 1.057 quarts 1 liter = 0.264 gallon
1 cubic inch = 0.016 liter	1 liter = 61.02 cubic inches
1 lb ft = 1.3558 N·m (Newton meters)	1 N·m = 0.7376 lb ft
1 horsepower = 0.7457 kilowatt	1 kilowatt = 1.341 horsepower
1 inch = 25.4 millimeters 1 inch = 2.540 centimeters 1 inch = 0.0254 meters	1 millimeter = 0.03937 inch 1 centimeter = 0.3937 inch 1 meter = 39.37 inches
1 foot = 304.8 millimeters 1 foot = 30.48 centimeters 1 foot = 0.3048 meter	1 millimeter = 0.00328 foot 1 centimeter = 0.0328 foot 1 meter = 3.281 feet
1 yard = 91.44 centimeters 1 yard = 0.914 meters	1 centimeter = 0.0109 yard 1 meter = 1.094 yards
1 mile = 1.609 kilometers 1 mile = 1609 meters	1 kilometer = 0.6214 mile 1 meter = 0.00062 mile
1 mile per hour = 1.609 kilometers per hour	1 kilometer per hour = 0.6214 miles per hour

Deposition of Francois J. Castaing
14 June 2011

Exhibit Eleven

In the matter of :

KLINE versus VICTORIA MORGAN-ALCALA, CARLOS ALCALA, NATALIE RAWLS, DAIMLERCHRYSLER CORPORATION (AKA CHRYSLER CORPORATION) LOMAN AUTO GROUP, CHRYSLER GROUP LLC, et al.

1990 Dodge

ENGINEERING

1990 Dodge ENGINEERING

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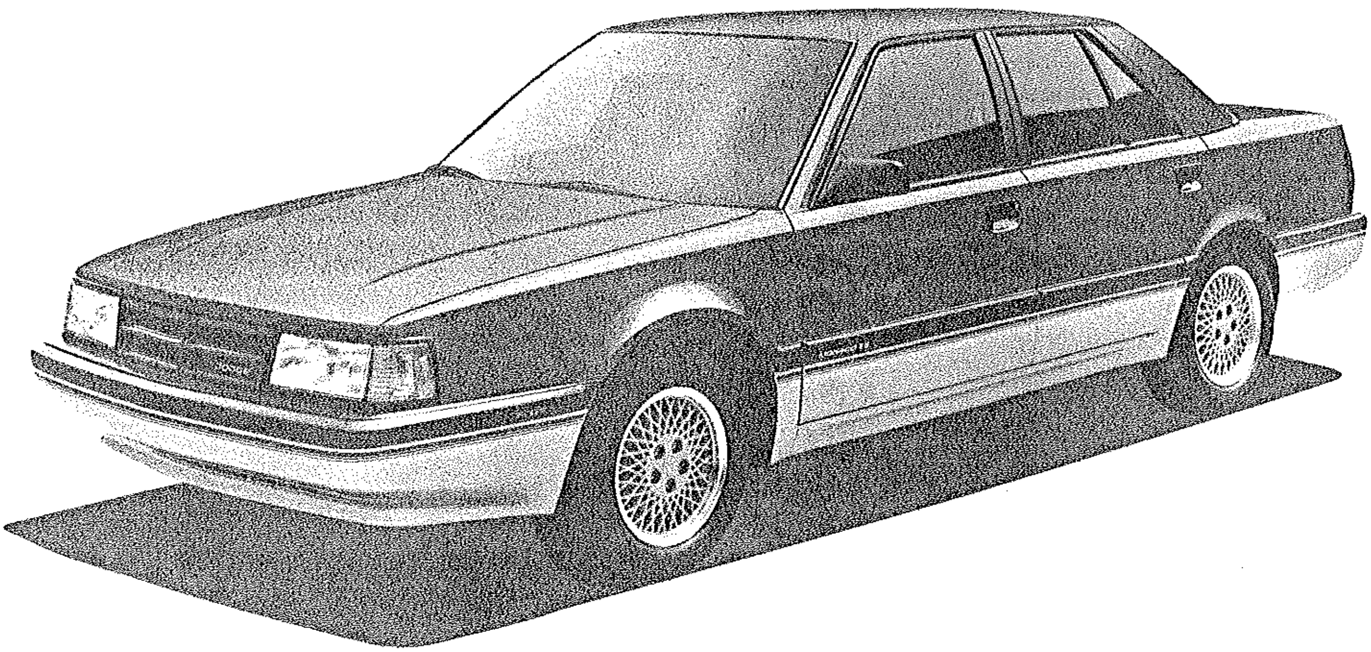
NEW DODGE MODELS FOR 1990

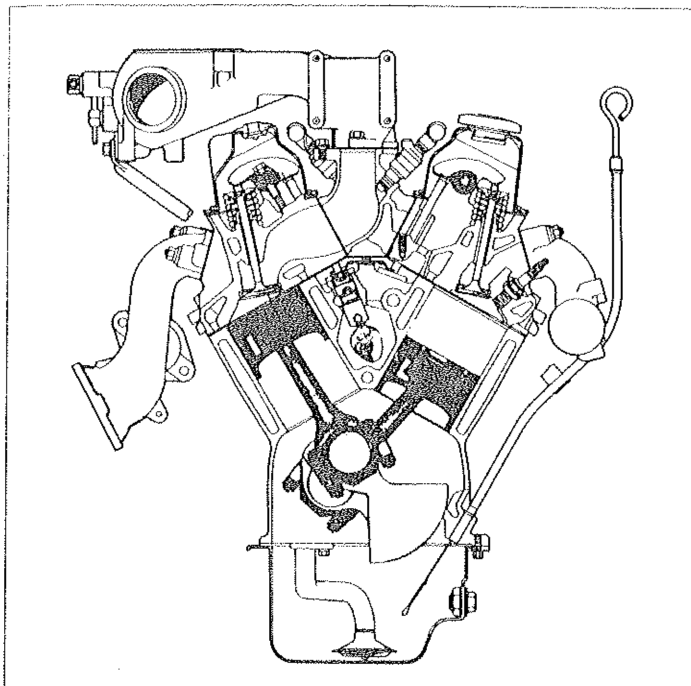


)0 Dodge Monaco ES

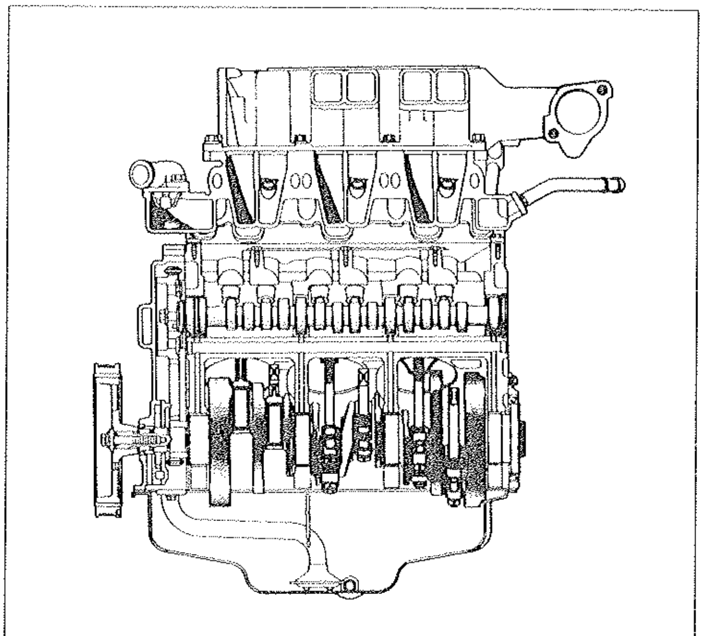
The excitement is building for Dodge Monaco's March 1990 introduction. Aerodynamically designed and performance engineered. Just to name a few, Monaco ES offers front-wheel drive, 3.0-liter V-6 engine, 4-wheel power disc brakes, 4-speed automatic transmission, and a 7-year/70,000-mile limited warranty. Room, comfort, and European styling make this provocative new Dodge sedan the perfect vehicle for the sophisticated buyer looking for a car with an international look.

NEW ENGINEERING HIGHLIGHTS

DODGE MOVES AHEAD IN QUALITY ENGINEERING, HIGH-TECH FEATURES AND PERFORMANCE!



3.3-liter OHV MPI engine (rear view)



3.3-liter OHV MPI engine (side view)

New steering wheels with integral air bag modules are used on all Dodge Daytona, Shadow, Dynasty, Spirit and Omni models. They are not available on Dodge Cavavan, Monaco or import models.

Omni models are equipped with the air bag steering wheel used in 1989 on Daytonas. The new "sport" style wheel used on Daytona has a four-spoke design, while the "luxury" style wheel used on other models has a two-spoke design. Each style of wheel is available with a leather-wrapped rim and both feature integral speed control switches on cars equipped with automatic speed control. Both styles also feature push-button horn switches on either side of the center pad that houses the standard air bag passive restraints. For additional safety information turn to pages 33 and 34.

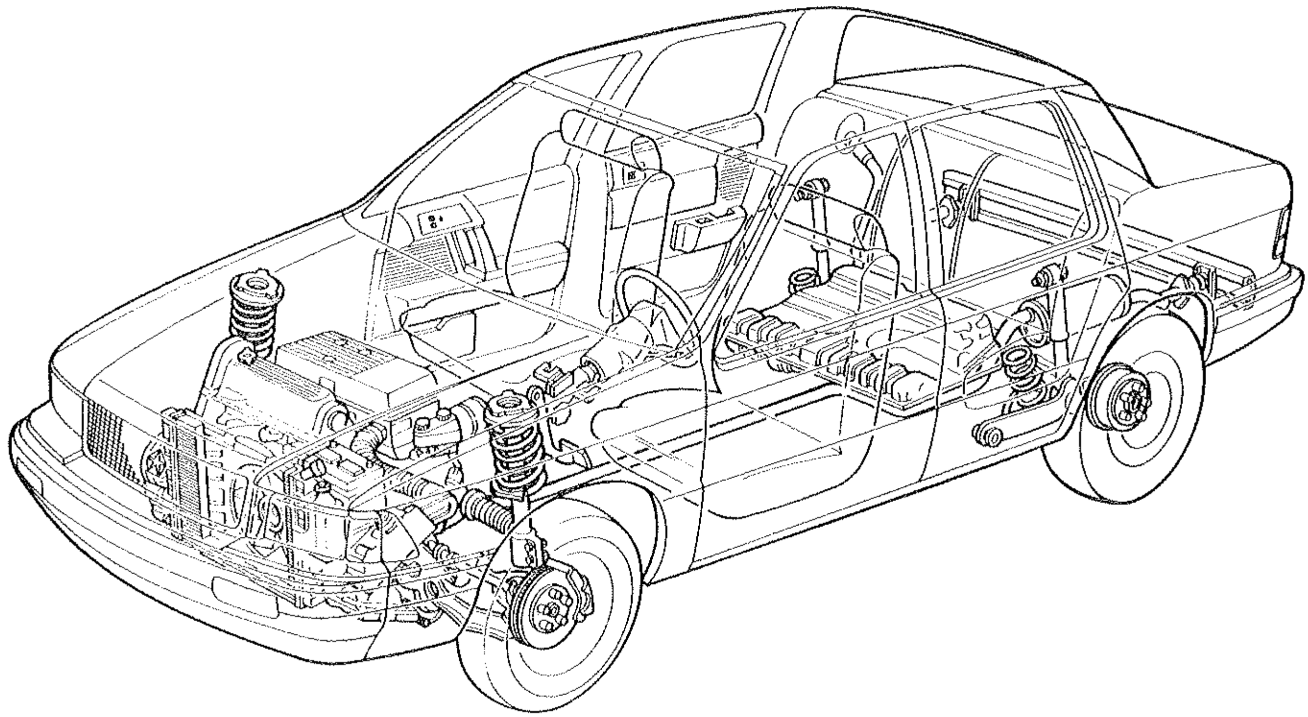
New steering columns are used on all Dodge passenger cars except Omni and Monaco for 1990. They are not available on Dodge Caravan models. On Daytona and Dynasty they are available in both fixed and tilt versions. On other models, they are available only in the tilt version.

The design of these new columns locates the steering wheel further from the driver than the columns previously used. This gives the driver better control of the car. For a totally integrated appearance, these columns feature a two-piece trim cover styled and color-keyed to match the car's interior. As a finishing touch, models with column-mounted automatic transmission shift levers also have a specially designed trim element that moves with the lever to conceal the opening in the column.

All-new 3.3-liter V-6 engine. Available only with the Ultradrive electronic 4-speed transaxle, this new engine is standard on Grand Caravan and available in the Dynasty LE. Compared to the 3.0-liter V-6, it provides up to 15% better acceleration in the first five seconds from a standing start.

2.2-liter SOHC MPI VNT Intercooled engine. Available on selected Daytona and Shadow models only, with the heavy-duty five-speed manual transaxle, this new version of the turbocharged 2.2-liter engine has been refined and redesigned to produce more power than its predecessor.

ENGINEERING HIGHLIGHTS



Spirit construction

Sequential multi-point fuel injection (SMPI) is used on both the 2.2-liter SOHC MPI VNT Turbo and 2.5-liter SOHC MPI Turbo engines. By injecting fuel into the individual cylinder ports exactly when it is needed and using improved fuel and ignition control strategies, SMPI offers a number of benefits including smoother, steadier idle and better response to rapid throttle movements.

Improved corrosion protection. All Dodge passenger cars except Omni now feature a level of protection that is designed to eliminate corrosion as an area of customer concern. All painted body parts which are exposed to the elements, except the roof panel, are either galvannealed or electro-plated. Zinc and all sheet metal used in these areas now carries full two-side protection.

Passenger car suspension refinements. On all Dodge passenger car models except Omni and Monaco, a number of refinements have been made in suspension design for 1990. These changes enhance ride quality, reduce harshness and further isolate the passenger compartment from road shock.

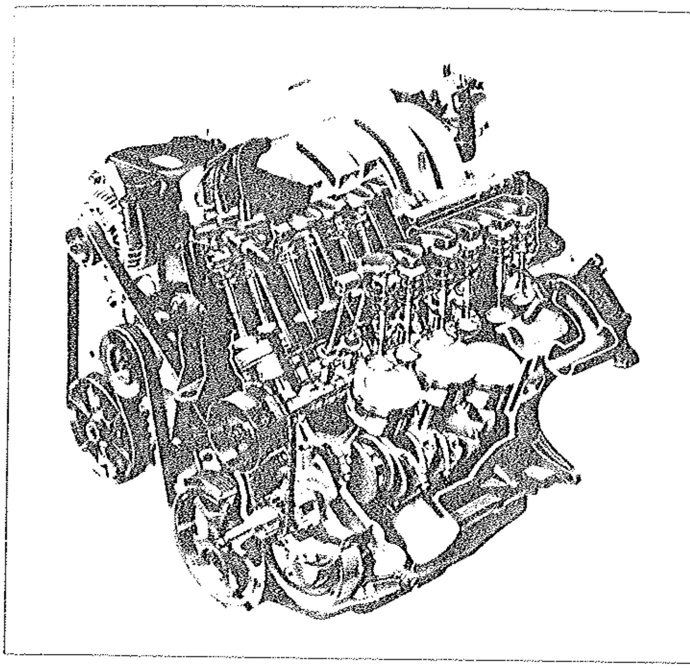
Climate control system improvements. For faster system cool-down and increased cooling capacity in high ambient temperatures, the available air-conditioning systems on all Dodge passenger cars (except Monaco, Dodge Caravan) now use an enhanced skyved-fin condenser. The variable-displacement compressor, introduced in 1989 on models with the 3.0-liter OHC MPI V-6 engine, will also be used in 1990 on Dodge models equipped with air conditioning and the new 3.3-liter OHV MPI V-6 engine.

Driver-selectable suspension damping on the Daytona Shelby allows the driver to choose FIRM, NORMAL or SOFT settings by using two console-mounted switches. Suspension system status can be monitored through a graphic display and LED's mounted on the switch bezel.

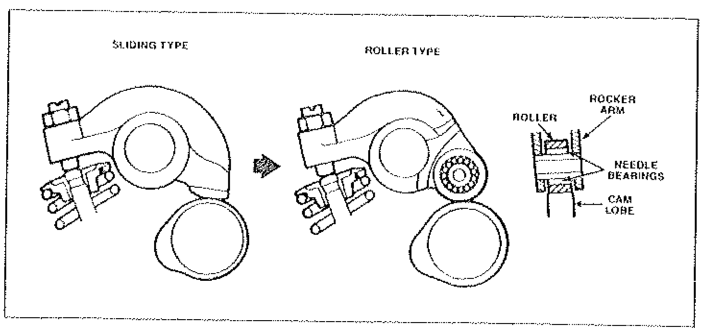
Features are engineered with modifications for specific car models to accommodate weight, handling and performance objectives. See car line sections of this book for feature availability.

1990 Dodge ENGINEERING

NEW ENGINE HIGHLIGHTS



3.3-liter OHV MPI engine



Roller camshaft followers for 3.0-liter Mitsubishi-built V-6

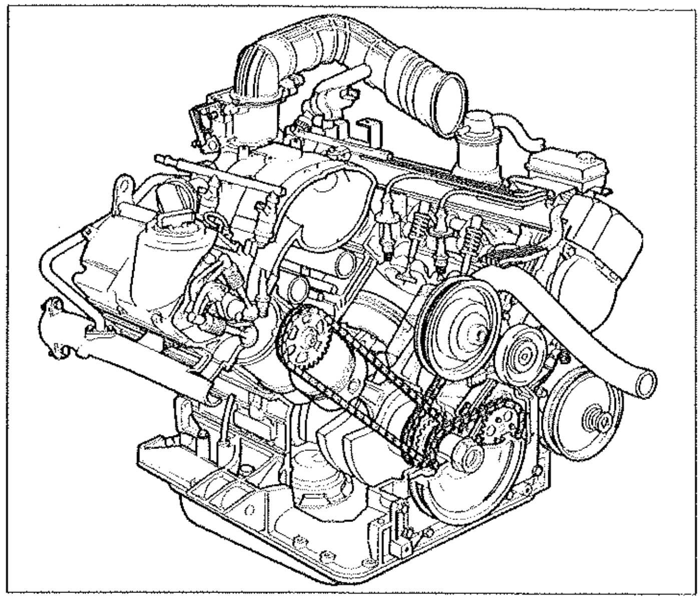
The new 3.3-liter OHV MPI V-6 engine.
This all-new engine is a compact 60-degree V-6 with a cast iron cylinder block and aluminum cylinder heads. The "V" design combines even firing with smooth operation and the low profile makes this engine ideal for the front-wheel drive powertrains and aerodynamic front-end styling of today's Dodge passenger cars. An advanced combustion system design utilizes large uniform intake and exhaust ports, alternating valves and combustion chamber "squish" areas to provide power, efficiency and effective emissions control. These and other innovations allow operation at a relatively high compression ratio of 8.9:1 on regular grade unleaded fuel. Other features of this all-new engine include a tuned intake manifold, multi-point electronic fuel injection, and Chrysler Motors' first distributorless ignition system.

The new 2.2-liter SOHC MPI VNT intercooled engine.
Increased power and improved turbo response are provided by this refined version of the 2.2-liter turbocharged engine. The use of a variable nozzle turbocharger increases turbo boost at low engine rpm and reduces "turbo lag." This provides improved torque at low speeds and reduces the need for down-shifting in normal driving. The variable nozzle design also eliminates the need for the waste gate system used to control turbo boost in traditional turbocharged engines. Other features of this engine include a 360-degree water jacketed turbine bearing housing for turbocharger durability and counter-rotating balance shafts for smooth engine operation.

Improved Mitsubishi-built 3.0-liter OHC MPI V-6 engine.
For 1990, a number of improvements have been made to the 3.0-liter, overhead-cam, multipoint fuel-injected V-6 engine built for Dodge by Mitsubishi. To reduce engine friction and noise, a new valve train design has been introduced. It features new roller rocker arms that can reduce engine friction by as much as 15 percent during low speed operation. The new rocker arms also feature small hydraulic lash adjusters to reduce engine noise. For increased durability, the new design includes nodular cast iron cams with induction-hardened lobes and new water-quenched valve springs. The new, improved version of the Mitsubishi-built 3.0-liter OHC MPI V-6 is also available on more Dodge models than ever before. In 1990, it is either standard or optional on Spirit ES, Dynasty, Dynasty LE, Caravan LE, Caravan SE and, for the first time ever, on Daytona and Daytona ES.

NEW ENGINE HIGHLIGHTS

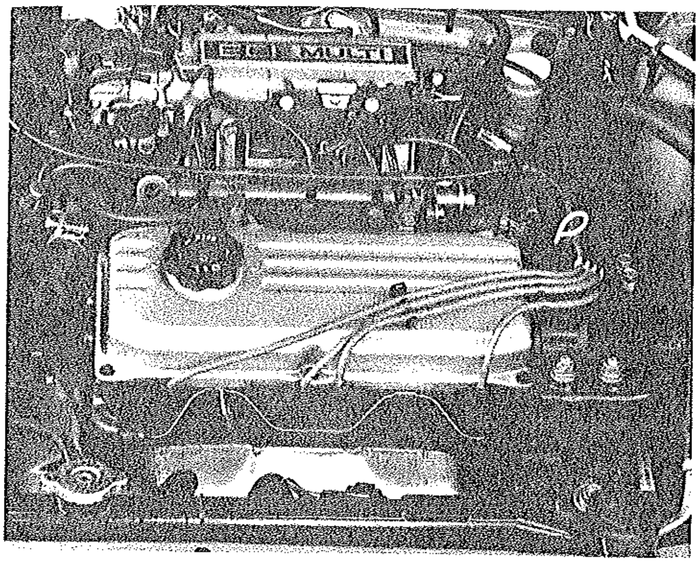
The new Monaco 3.0-liter OHC MPI V-6 engine.
Standard on the new Monaco is a 3.0-liter V-6 engine featuring overhead cam design with multi-point electronic fuel injection. Other features of this 90-degree V-6 engine include an aluminum block and cylinder heads, tuned intake manifold runners and semi-hemispherical combustion chambers for enhanced combustion efficiency. For durability and reduced maintenance, it has a block girdle mounted across the bottom of the crankcase, hardened cast iron wet cylinder sleeves, cast iron valve seat inserts, brass valve stem guides, and chain-driven single overhead camshafts with aluminum rocker heads and mini-hydraulic valve lash adjusters. For optimum sealing, it has torque-to-yield cylinder head bolts, specifically-designed non-asbestos cylinder head and exhaust manifold gaskets, and a Viton® camshaft seal.



Monaco 3.0-liter MPI engine

1990 Dodge ENGINEERING

ENGINE LINEUP



MITSUBISHI-BUILT 4-CYLINDER ENGINES

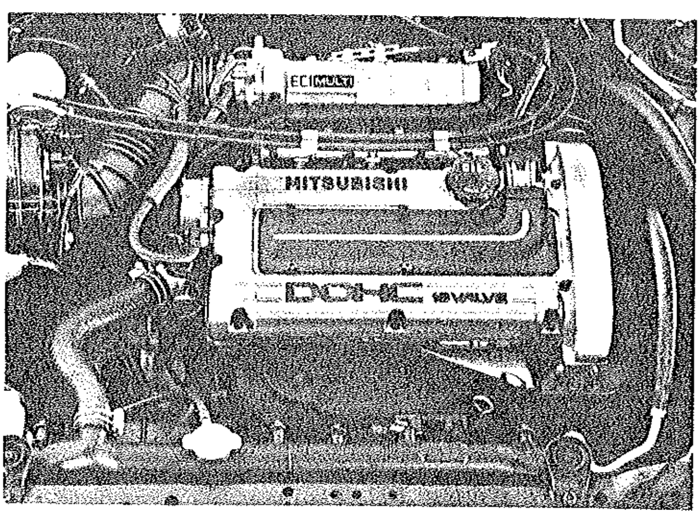
1.5-LITER EFI ENGINE

Specifications

Engine Type 4-Cylinder
Displacement .... 1.5-Liters (90 CID)
Bore and Stroke .... 2.97" x 3.23"
Compression Ratio 9.4-to-1
Fuel System .... Multi-Point Electronic Fuel Injection
Horsepower* .... 81 @ 5,500 rpm
Torque† .... 91 @ 3,000 rpm

*For DL Wagon 75 @ 5,500
†For DL Wagon 87 @ 2,500

SALES CODES	MODELS	AVAILABILITY	MANUAL TRANSAXLE		AUTOMATIC TRANSAXLE	
			EPA EST. CITY MPG	EPA EST. HWY MPG	EPA EST. CITY MPG	EPA EST. HWY MPG
EJB	Colt 3-Door Hatchback	Standard	31	36	Not Available	
	Colt GL 3-Door Hatchback	Standard	28	34	27	29
	Colt GT 3-Door Hatchback	Standard	28	34	27	29
	Colt DL Front-Wheel Drive Wagon	Standard	28	34	27	29



1.6-LITER DOHC 16-VALVE ENGINE

Specifications

Engine Type 4-Cylinder
Displacement .... 1.6-Liters (97 CID)
Bore and Stroke .... 3.24" x 2.95"
Compression Ratio 9.2-to-1
Fuel System .... Multi-Point Electronic Fuel Injection
Horsepower .... 113 @ 6,500 rpm
Torque .... 99 @ 5,000 rpm

SALES CODE	MODEL	AVAILABILITY	MANUAL TRANSAXLE		AUTOMATIC TRANSAXLE	
			EPA EST. CITY MPG	EPA EST. HWY MPG	EPA EST. CITY MPG	EPA EST. HWY MPG
EJD	Colt GT with Performance Package	Optional	23	28	23	28

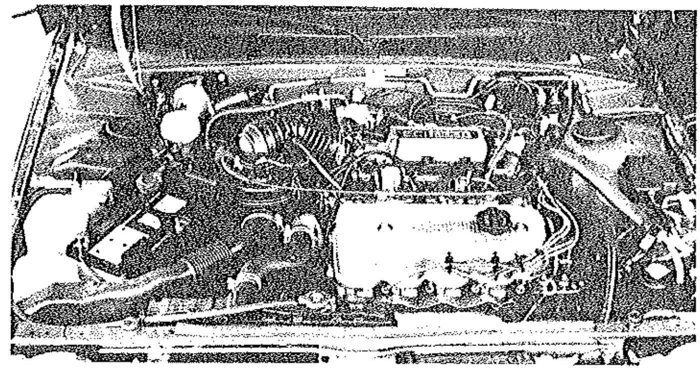
1990 Dodge ENGINEERING

ENGINE LINEUP

1.8-LITER EFI ENGINE

Specifications

Engine Type 4-Cylinder
Displacement .... 1.8-Liters (106.8 CID)
Bore and Stroke ....3.17" x 3.39"
Compression Ratio 9.0-to-1
Fuel System ....Multi-Point
Electronic Fuel Injection
Horsepower ....87 @ 5,000 rpm
Torque .... 102 @ 3,000 rpm

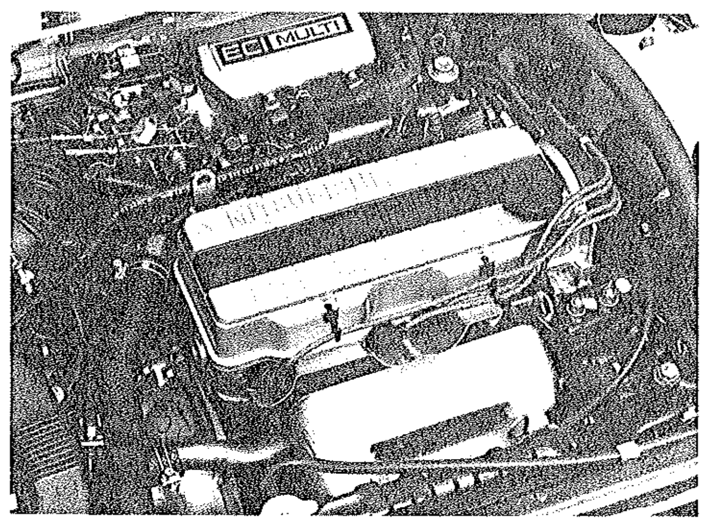


SALES CODE	MODEL	AVAILABILITY	MANUAL TRANSAXLE		AUTOMATIC TRANSAXLE	
			EPA EST. CITY MPG	EPA EST. HWY MPG	EPA EST. CITY MPG	EPA EST. HWY MPG
EJE	Colt DL Four-Wheel Drive Wagon	Standard	23	28	Not Available	

.O-LITER EFI ENGINE

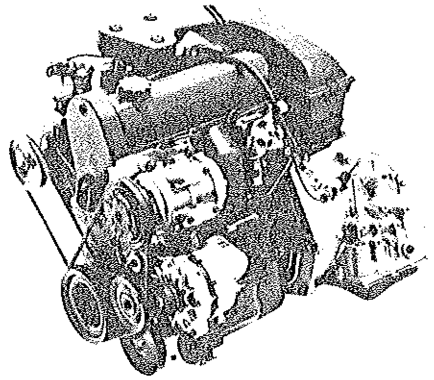
Specifications

Engine Type 4-Cylinder
Displacement ....2.0-Liters(122 CID)
Bore and Stroke ....3.35" x 3.46"
Compression Ratio 8.5-to-1
Fuel System ....Multi-Point
Electronic Fuel Injection
Horsepower ....96 @ 5,000 rpm
Torque .... 113 @ 3,500 rpm



SALES CODE	MODELS	AVAILABILITY	MANUAL TRANSAXLE		AUTOMATIC TRANSAXLE	
			EPA EST. CITY MPG	EPA EST. HWY MPG	EPA EST. CITY MPG	EPA EST. HWY MPG
EYB	Colt Vista Front-Wheel Drive Wagon	Standard	23	29	22	23
	Colt Vista Four-Wheel Drive Wagon	Standard	19	25	Not Available	

ENGINE LINEUP

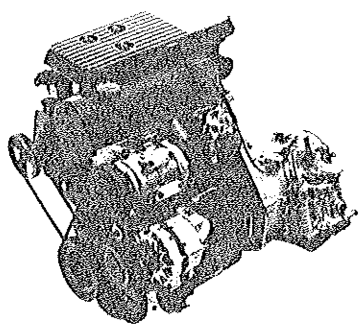


2.2-LITER SOHC EFI ENGINE

Specifications

Engine Type 4-Cylinder
Displacement .... 2.2-Liters (135 CID)
Bore and Stroke .... 3.44" x 3.62"
Compression Ratio 9.5-to-1
Fuel System .... Single-Point Electronic Fuel Injection
Horsepower .... 93 @ 4,800 rpm
Torque .... 122 @ 3,200 rpm

SALES CODE	MODEL	AVAILABILITY	MANUAL TRANSAXLE		AUTOMATIC TRANSAXLE	
			EPA EST. CITY MPG	EPA EST. HWY MPG	EPA EST. CITY MPG	EPA EST. HWY MPG
EDF	Shadow	Standard	24	31	23	28
	Omni America	Standard	25	34	25	30



2.5-LITER SOHC EFI ENGINE

Specifications

Engine Type 4-Cylinder
Displacement .... 2.5-Liters (153 CID)
Bore and Stroke .... 3.44" x 4.09"
Compression Ratio 8.9-to-1
Fuel System .... Single-Point Electronic Fuel Injection
Horsepower .... 100 @ 4,800 rpm
Torque .... 135 @ 2,800 rpm

SALES CODE	MODELS	AVAILABILITY	MANUAL TRANSAXLE		AUTOMATIC TRANSAXLE	
			EPA EST. CITY MPG	EPA EST. HWY MPG	EPA EST. CITY MPG	EPA EST. HWY MPG
EDM	Shadow—All Models	Optional*	24	32	22	27
	Spirit and Spirit LE	Standard	24	32	22	27
	Daytona and Daytona ES	Standard	24	32	22	27
	Dynasty[1]	Standard	Not Available		22	27
	Caravan–All Except Grand Caravan SE and LE	Standard	22	28	21	23

*Available as an independent option or in option packages only. See appropriate model section of this Data Book.
[1]Automatic transaxle is standard on this model.

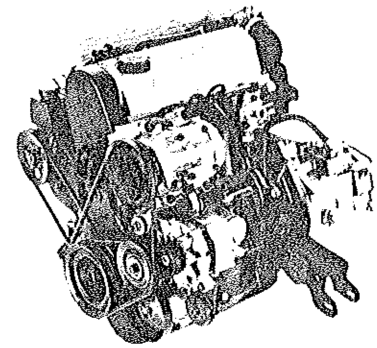
1990 Dodge ENGINEERING

ENGINE LINEUP

2.5-LITER SOHC MPI TURBO* ENGINE

Specifications

Engine Type 4-Cylinder
Displacement .... 2.5-Liters (153 CID)
Bore and Stroke .... 3.44" x 4.09"
Compression Ratio 7.8-to-1
Fuel System .... Sequential Multi-Point Electronic Fuel Injection with Turbocharger
Horsepower .... 150 @ 4,800 rpm
Torque .... 180 @ 2,000 rpm

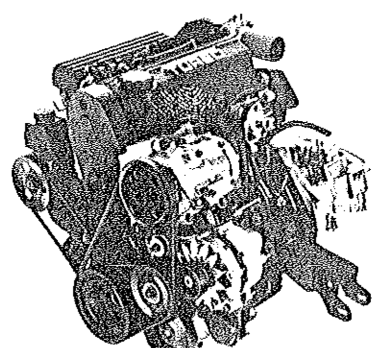


SALES CODE	MODELS	AVAILABILITY	MANUAL TRANSAXLE		AUTOMATIC TRANSAXLE	
			EPA EST. CITY MPG	EPA EST. HWY MPG	EPA EST. CITY MPG	EPA EST. HWY MPG
EDT	Shadow—All Models	Optional†	21	29	20	23
	Spirit and Spirit LE	Optional†	21	29	19	23
	Spirit ES	Standard	21	29	19	23
	Daytona ES Turbo	Standard	20	29	19	23
	Daytona (CS Package)	Optional†	20	29	19	23
	Daytona Shelby	No Charge Option	Not Available		19	23
	Caravan-Short Wheelbase Models Only	Optional†	18	26	19	23

2.2-LITER SOHC MPI VNT INTERCOOLED TURBO* ENGINE

Specifications

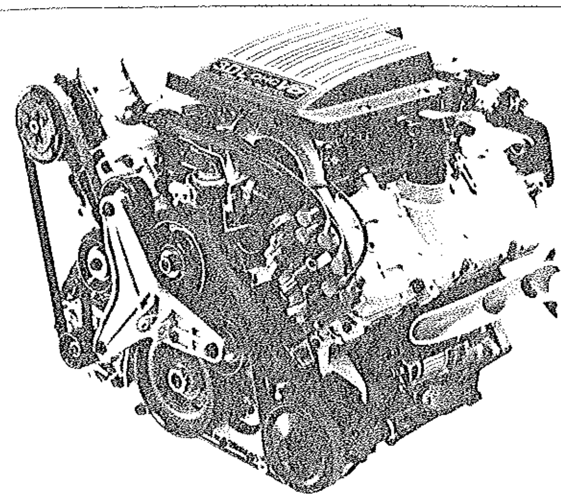
Engine Type 4-Cylinder
Displacement .... 2.2-Liters(135 CID)
Bore and Stroke .... 3.44" x 3.62"
Compression Ratio 8.0-to-1
Fuel System .... Sequential Multi-Point Electronic Fuel Injection with VNT Turbocharger and Intercooler
Horsepower .... 174 @ 5,200 rpm
Torque .... 210 @ 2,400 rpm



SALES CODE	MODELS	AVAILABILITY	MANUAL TRANSAXLE	
			EPA EST. CITY MPG	EPA EST. HWY MPG
EDR	Daytona Shelby	Standard	20	26
	Daytona (CS Package)	Optional†	20	26
	Shadow ES	Optional†	20	28

†Available as an independent option or in option package(s) only. See appropriate model section of this Data Book.
*Premium unleaded fuel recommended. Turbo charged engine not recommended for trailer towing and such use may invalidate warranty.

ENGINE LINEUP



3.0-LITER OHC MPI ENGINE

Specifications

Engine Type .... V-6 MPI
Displacement .... 3.0-Liters (181 CID)
Compression Ratio 9.3-to-1
Bore and Stroke .... 3.66" x 2.87"
Fuel System .... Multi-Point Electronic Fuel Injection
Horsepower .... 150 @ 5,000 rpm
Torque .... 171 @ 3,600 rpm

SALES CODE	MODELS	AVAILABILITY	AUTOMATIC TRANSAXLE	
			EPA EST. CITY MPG	EPA EST. HWY MPG
EFP	Monaco LE	Standard	17	26
	Monaco ES	Standard	17	26

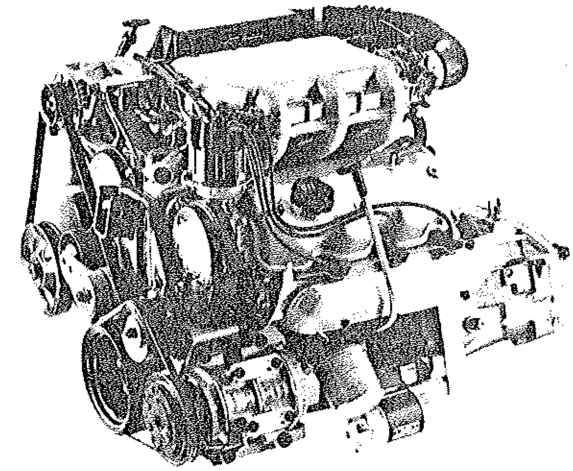
ENGINE LINEUP

MITSUBISHI-BUILT 3.0-LITER OHC MPI V-6 ENGINE

Specifications

Engine Type V-6
Displacement .... 3.0-liters (181 CID)
Bore and Stroke .... 3.59" x 2.99"
Compression Ratio 8.9-to-1
Fuel System .... Multi-Point Electronic Fuel Injection
Horsepower(1) .... 141 @ 5,000 rpm
Torque(1) .... 171 @ 2,800 rpm

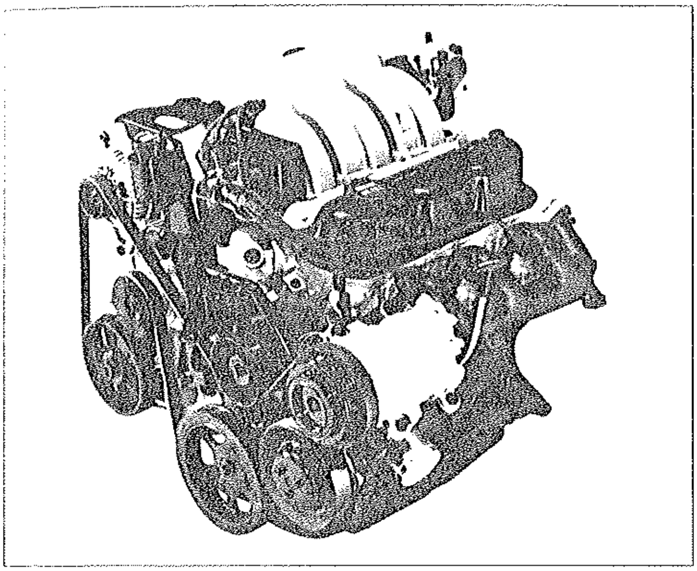
(1)Caravan models: horsepower, 142 @ 5,000 rpm; torque, 173 @ 2,400 rpm.



SALES CODE	MODELS	AVAILABILITY	AUTOMATIC TRANSAXLE		MANUAL TRANSAXLE	
			EPA EST. CITY MPG	EPA EST. HWY MPG	EPA EST. CITY MPG	EPA EST. HWY MPG
EFA	Spirit	Optional*	20	26	Not Available	
	Spirit LE	Optional*	20	26	Not Available	
	Spirit ES	Optional*	20	26	Not Available	
	Dynasty	Optional*	20	26	Not Available	
	Dynasty LE	Standard	20	26	Not Available	
	Daytona	Optional*	19	26	19	27
	Daytona ES	Optional*	19	26	19	27
	Caravan LE	Optional*	19	24	Not Available	
	Caravan SE	Optional*	19	24	Not Available	

*Available as an independent option or in option package(s) only. See appropriate model section of this Data Book.

ENGINE LINEUP



3.3-LITER OHV MPI V-6 ENGINE

Specifications

Engine Type V-6
Displacement .... 3.3-liters (181 CID)
Bore and Stroke .... 3.66" x 3.19"
Compression Ratio .... 8.9 to 1
Fuel System .... Multi-Point Electronic Fuel Injection
Horsepower(1) .... 147 @ 4,800 rpm
Torque(1) .... 183 @ 3,600 rpm

(1)Caravan models: horsepower, 150 @ 4,800 rpm; torque, 185 @ 3,600 rpm.

SALES CODE	MODEL(S)	AVAILABILITY	AUTOMATIC TRANSAXLE EPA EST. CITY MPG	AUTOMATIC TRANSAXLE EPA EST. HWY MPG
EGA	Dynasty LE	Optional*	18	25
	Grand Caravan LE	Standard	18	24
	Grand Caravan SE	Standard	18	24

*Available as an independent option or in option package(s) only. See appropriate model section of this Data Book.

1990 Dodge ENGINEERING

ENGINE ELECTRONIC FEATURES

Single module engine controller (SMEC)

Dodge passenger cars are equipped with an engine controller to manage the electronic fuel injection and ignition systems. The SMEC is located in the engine compartment. The engine controller or computer receives inputs from a variety of system sensors and switches that provide information about vehicle and engine operating conditions. Based on this information, the engine controller regulates ignition timing, air/fuel ratio, emission control devices, cooling fan(s), the charging system, idle speed and optional electronic speed control. Chrysler-built engine controllers are programmed to provide optimal performance and economy under all operating conditions while controlling emissions. Monaco and Colt models use computers to control the same functions.

Direct (distributorless) ignition system

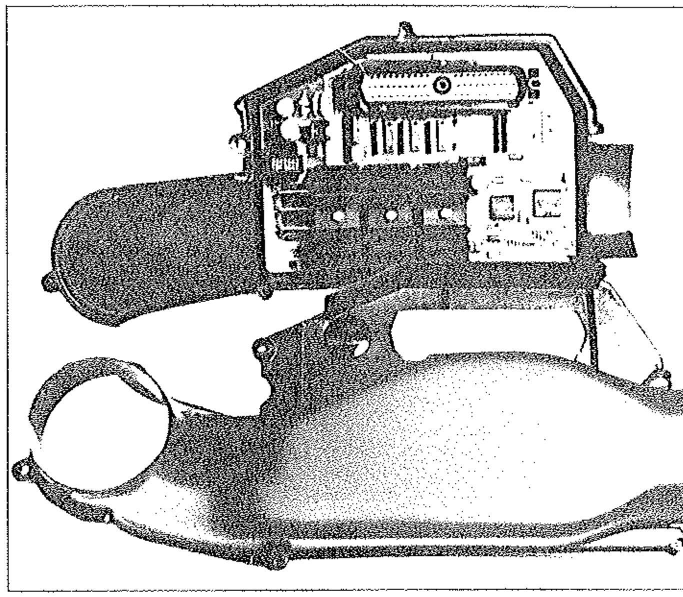
The new 3.3-liter OHV MPI V-6 engine has Chrysler Motors' first application of a direct (distributorless) ignition system (DIS). Because DIS was designed into this engine, it is more compact and requires no distributor, cap, rotor, coil lead or provision for driving a distributor. Precise ignition and fuel injection timing are assured because the engine control system sensors read input signals directly from the crankshaft; camshaft timing will not change and cannot be mis-adjusted because there is no mechanical distributor. Idle quality is improved through precise timing control because there is no series of mechanical parts which can wear—resulting in increased clearance between parts. Both engine response and idle quality are improved because DIS provides information to the engine control system about ignition and injection timing more quickly and accurately.

Molded ignition coils

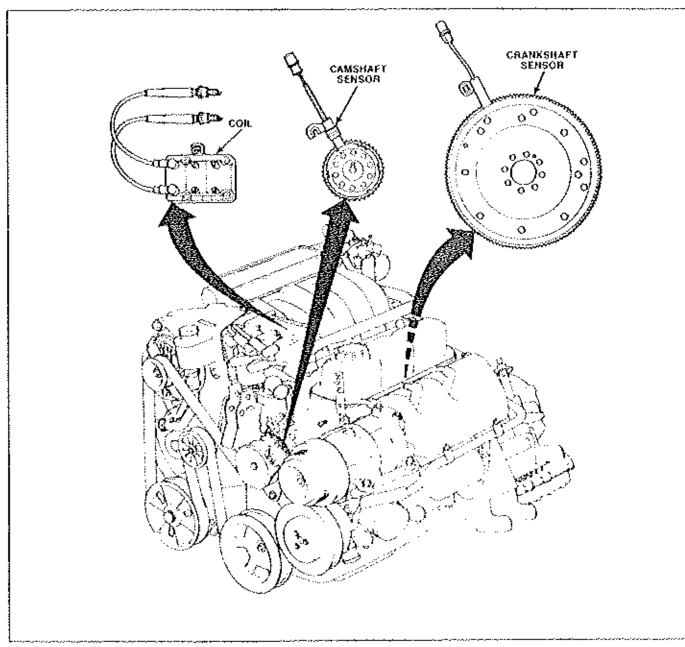
New molded ignition coils are used on the new 3.3-liter V-6 engine and other applications. They are smaller and lighter yet more efficient than the previous coils.

Copper-core spark plug

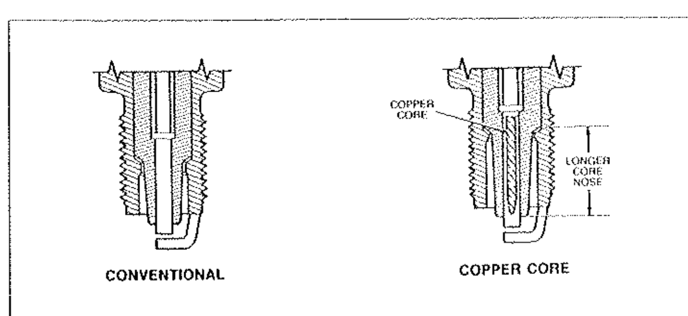
All U.S.-built Dodge engines and the Mitsubishi-built 3.0-liter V-6 engine have copper-core spark plugs with a longer nose than conventional spark plugs. This design provides resistance to spark plug fouling which can result in misfiring.



Single module engine controller

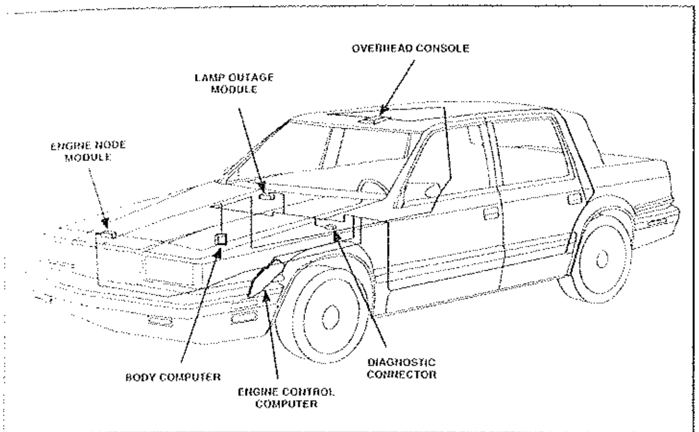


3.3-liter OHV MPI V-6 engine direct ignition system components

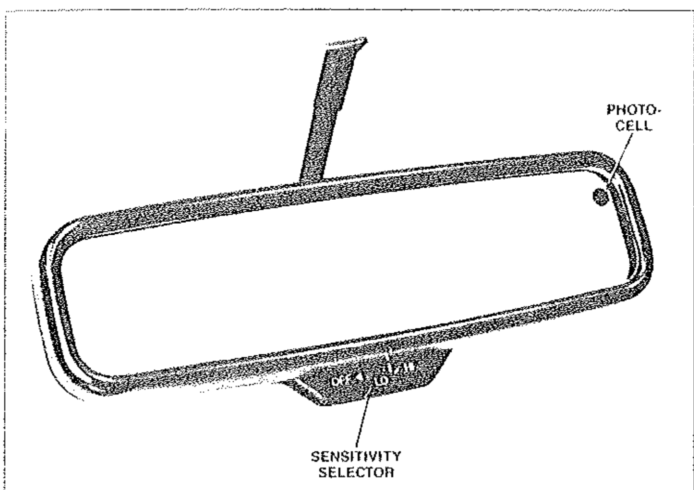


Copper-core spark plug

ELECTRICAL FEATURES



Body computer



Self-dimming rearview mirror

Body computer and vehicle data communication network
A *body computer* is standard on all Dynasty, Daytona and Spirit models. It lights the ignition key slot for 30 seconds when the driver's door is opened; signals a "CHECK GAUGES" lamp on the instrument panel when engine coolant temperature is above 250°F or when there is a charging system failure; and turns on the seat belt reminder for six seconds when the ignition is turned on. It also governs the logic and timing of the optional illuminated entry system and optional power door locks.

The body computer is part of a revolutionary *vehicle data communication network* that includes the engine control computer, the electronic vehicle information center (where used) and the Traveller or travel trip computer (where used). The network also works in conjunction with other monitoring devices shown in the illustration to the right.

The purpose of the communication network is shared operating information. Each control or diagnostic module has its own microprocessor which collects data. This is then coded and digitally transmitted to all modules where it can be read and used.

Self-dimming rearview mirror
A new electronic self-dimming inside rearview mirror is available on Dodge Dynasty LE. When bright lights appear in the mirror at night, the amount of distracting light reflected into the driver's eyes is automatically reduced. The amount of dimming is proportional to the brightness of the light. A manual sensitivity setting allows the driver to select the level of brightness at which dimming begins. When the car is in reverse, this automatic dimming feature is overridden to assure good visibility for the driver when backing up.

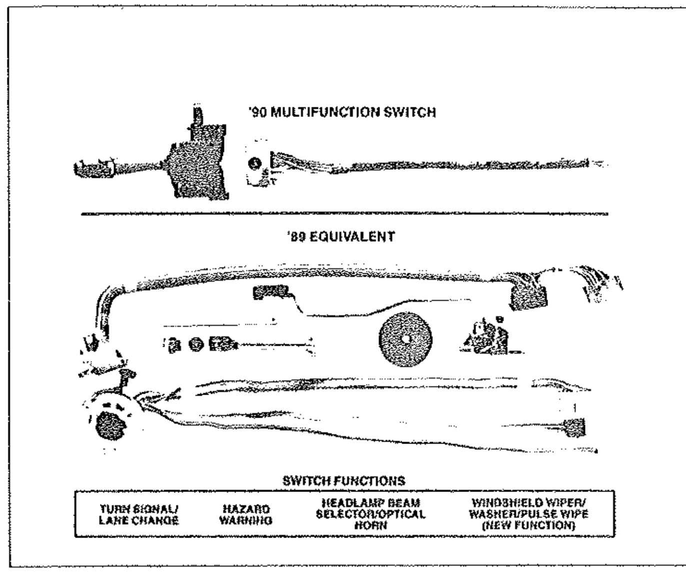
Electrical power distribution center on Dynasty
For increased serviceability and improved underhood appearance, Dodge Dynasty for 1990 has an electrical power distribution center. It is located in the engine compartment on the driver's side near the battery to provide maximum circuit protection. Included in the power distribution center are plug-in cartridge-type fuses that replace all but one of the in-line fusible links previously used. The charging system link remains. These fuses are much easier to replace and provide more predictable circuit protection than fusible links. Also included in the distribution center are plug-in ISO relays for engine compartment components and fuses for two line circuits which serve only the engine compartment. The entire unit has a latching cover which provides environmental protection for all of the components. A label inside the cover identifies each component to enable easy replacement.

ELECTRICAL FEATURES

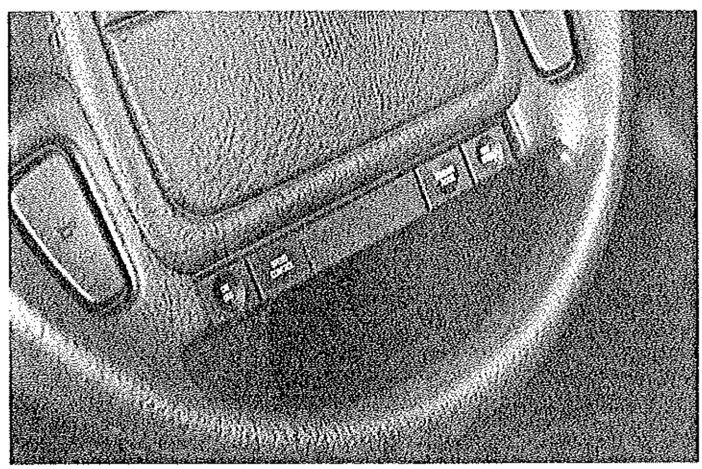
A new multi-function control stalk is used on Dynasty, Spirit and Shadow and complements the new steering wheels and steering columns used on these cars. This new control stalk provides smoother operation of the turn signals, the headlamp dimmer switch, the optical horn and the windshield wiper/washer. In addition, it adds a new "pulse wipe" feature that provides a single cycle of the wipers each time the lever is pressed. This new unit also includes the hazard warning flasher switch. It is located on the top of the unit where it is more visible and accessible to the driver. The new appearance of the redesigned control stalk features a matte black finish with white lettering to identify the switch functions.

Electronic speed control refinements

Available on all Dodge passenger cars except Omni and Monaco, the refined electronic speed control system features new steering wheel-mounted switches for easier operation. The SET and RESUME functions in this redesigned system operate in the same manner as in previous systems and system control limits remain at 35 and 85 mph. An ACCEL feature has been added. When speed control is engaged, holding down the RESUME/ACCEL button will increase the vehicle speed at a constant rate. When the button is released, the vehicle's current speed will be the new set speed. Pressing and releasing the button within one second ("tapping") will produce a 2 mph increase in set speed. The system will remember multiple taps. For example, if the RESUME/ACCEL button is tapped twice, the vehicle's speed will be increased by 4 mph. A new DECEL feature has also been added. When the speed control system is engaged, pressing and holding the SET/DECEL button will allow the vehicle to decelerate. When the button is released, a new set speed is established without any dip in speed after the button is released. Other improvements to the system include software enhancements, that allow the vehicle to resume the set speed after a passing maneuver without any sag in speed, and additional diagnostic features that improve serviceability.

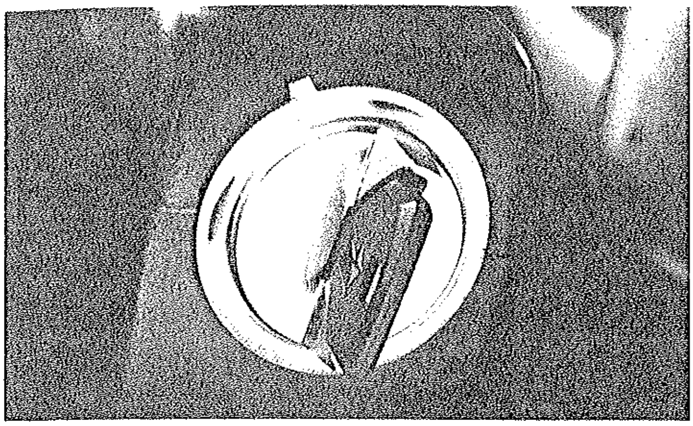


Multifunction control lever comparison

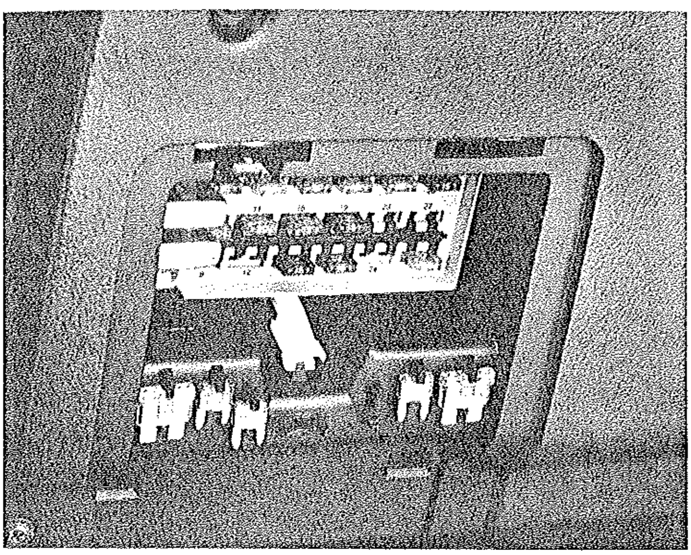


New electronic speed control

ELECTRICAL FEATURES



Ignition switch for Dynasty, Daytona, Spirit and Shadow



New Daytona fuse block with mini fuses

A new ignition switch is used on Dynasty, Daytona, Spirit and Shadow in conjunction with the new steering column. This redesigned switch functions as before but is integrated with the key cylinder and operates more smoothly than switches used in the past. It also includes a halo-type ignition key cylinder lamp that surrounds the key cylinder with light to make it easy to locate at night.

A new fuse block with mini fuses on Daytona models represents the industry's first use of these new compact blade-type fuses that are about 2/3 the size of the present blade-type ATO fuses. This allows 28 circuits to be packaged in the same fuse block area previously used for only 20 circuits. The fuse block has also been redesigned with simplified wiring connections in which the wires attach directly to the bus bar, replacing a three-piece riveted bus bar assembly and separate wiring terminal.

New tachometer return-to-zero feature
Tachometers on Daytona, Shadow and Omni have a new return-to-zero feature that allows the tachometer pointer to return to 0 rpm when the key is turned off. Previously, tachometers on these models showed a positive reading with the engine off.

TURBOCHARGED ENGINES

Dodge offers two turbocharged engines for 1990:
1. The Chrysler-built 2.5-liter SOHC Turbo engine with multi-point electronic fuel injection.
2. The Chrysler-built 2.2-liter SOHC VNT intercooled engine with multi-point fuel injection

Turbocharging puts extra power and quickness into today's fuel-efficient 4-cylinder engines.
The engine turbocharger is the ideal solution for providing extra acceleration and passing quickness for today's fuel-efficient 4-cylinder engines. A small, stainless steel turbine wheel, in a housing which is bolted to the exhaust manifold, is driven at tremendously high speeds (over 100,000 rpm) by hot exhaust gases. It rotates a small aluminum compressor on the other end of the same drive shaft. The compressor is located ahead of the intake manifold where it rams air-fuel mixtures into the combustion chambers under pressure to produce greater power in each cylinder when the spark plug fires. The turbocharger on the 2.5-liter SOHC Turbo engine is of a low inertia design and has less rotating mass to overcome, thus achieving faster throttle response.

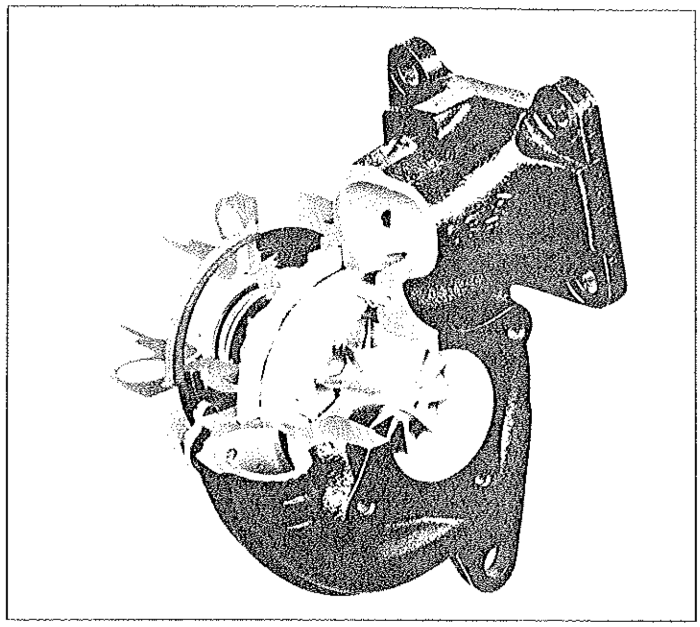
Dodge controls boost pressure because otherwise the 2.5-liter turbo engine would be subjected to higher pressures and higher temperatures than could be tolerated. The maximum boost level is physically controlled by a astegate which is a valve that permits some of the haust gases to bypass the turbine wheel. This regulates me turbine and, in turn, the air compressor, thus preventing unnecessary air flow into the engine. Controlled transient overboost is permitted during snap acceleration for up to 10 seconds. The wastegate actuator solenoid is located in the pressure signal line leading from the intake turbocharger to the wastegate actuator. This solenoid receives a signal from the computer and, in turn, controls the position of the wastegate through the actuator.

Bearings cooled by air, oil and water. The turbocharger bearings on the shaft between the turbine and compressor are cooled and lubricated by oil that is pumped through and around the bearings. A water jacket around the turbine and compressor bearings cools the oil and helps to increase the life of the oil and the turbocharger. And, naturally, the air that flows through the engine compartment helps in the job of cooling.

Intercooler
The 2.2-liter SOHC MPI VNT intercooled turbo engine uses an intercooler to provide additional cooling. This is an extremely efficient device that functions like a radiator to carry heat away from the turbocharger assembly.

Control of spark knock is achieved by regulating boost as well as spark. When the computer senses spark knock in a cylinder, it signals a small spark retard to that cylinder only if the knock persists. It then lowers engine boost until the spark knock stops. Performance loss is therefore minimized.

rbocharged 4-cylinder engines can be driven for good el economy because they provide the on-demand power of a larger engine, but maintain the efficiency of a four-cylinder engine.



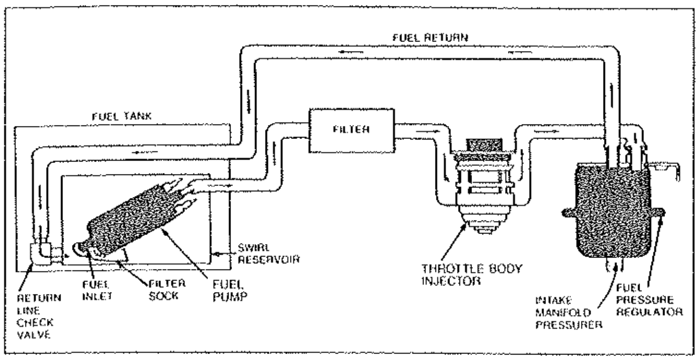
VNT Turbo showing open and closed positions

Variable nozzle turbocharger
The all-new turbocharger used on the 2.2-liter SOHC MPI VNT intercooled turbo engine features a variable nozzle design. It provides increased boost at low engine speeds and reduces the phenomenon known as turbo lag. This results in more available torque at low speed which reduces the need for downshifting under normal driving conditions. The reduction of turbo lag means that this year's engine accelerates from idle to full boost in half the time.

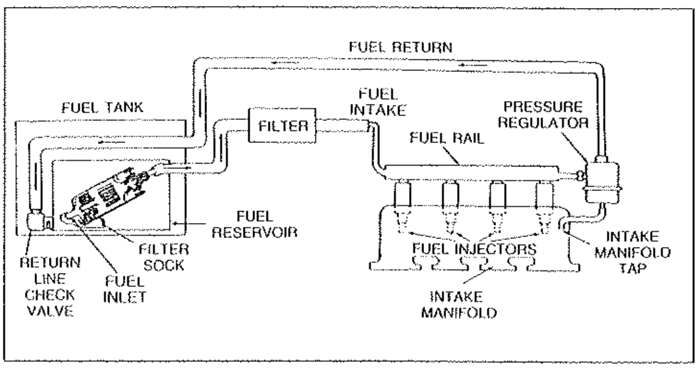
This innovative design incorporates 12 aerodynamic, moveable vanes, which are mounted in a nozzle ring around the turbine wheel. At low engine speeds, when exhaust volume is low, a unison ring moves the blades to restrict flow and increase exhaust gas velocity in the direction of the turbine wheel, resulting in rapid turbine acceleration. As engine speed and power increase, the blades are re-positioned to allow higher flow for maximum boost. This moveable blade design eliminates the need for a traditional wastegate system to control boost. The variable nozzle vanes are moved by a pressure vacuum actuator that works on either manifold vacuum or turbocharger boost pressure, depending on operating conditions. The control system for positioning this actuator uses three electronically controlled vacuum solenoids. To enhance durability, the variable nozzle turbocharger also features a 360-degree water-jacketed turbine bearing housing.

1990 Dodge ENGINEERING

FUEL DELIVERY AND EXHAUST SYSTEMS



Single-point fuel injection



Multi-point and sequential multi-point fuel injection

Chrysler Electronic Fuel Injection Systems

At the heart of all Chrysler electronic fuel injection systems is a device known as an engine controller. The single-module engine controller (SMEC) manages ignition timing, air/fuel ratio, emission control devices and idle speed. The controller updates and revises its programming to meet all operating conditions through an adaptive memory. It also constantly evaluates a variety of inputs that provide information about the current state of engine and vehicle systems. Based on an analysis of this information, the controller alters fuel flow and ignition timing for best performance.

(Mitsubishi-built cars and the Dodge Monaco also use computers to manage their fuel injection systems.)

Advantages of Chrysler-Built Electronic Fuel Injection over Conventional Carburetors:

- Provides correct fuel mixture for both starting and idling
- Ensures consistent and accurate fuel metering under all operating conditions
- Assures correct fuel supply by means of a pressure regulator

The three types of systems used on Dodge passenger cars:

1. **Throttle-body injection—single-point**
   As the term suggests, this system employs a single fuel Injector in the throttle body assembly. The duration and timing of the fuel injection pulses on the engine are regulated by the various computers described above.

2. **Multi-point intake-port fuel injection** This system employs fuel injectors—one for each port of the intake manifold on the Mitsubishi-built 3.0-liter V-6 engine. Fuel is injected alternately through the injectors in pulses regulated by the single-module engine controller. The pulses and engine spark timing are coordinated for maximum engine efficiency in all operating conditions—starting, idling, accelerating, cruising, decelerating, etc. The system also uses a tuned intake, with individual runners leading to each cylinder from the manifold plenum chamber. Air is fed into the plenum from the throttle body so that horsepower and torque efficiency are superior to a non-tuned design.

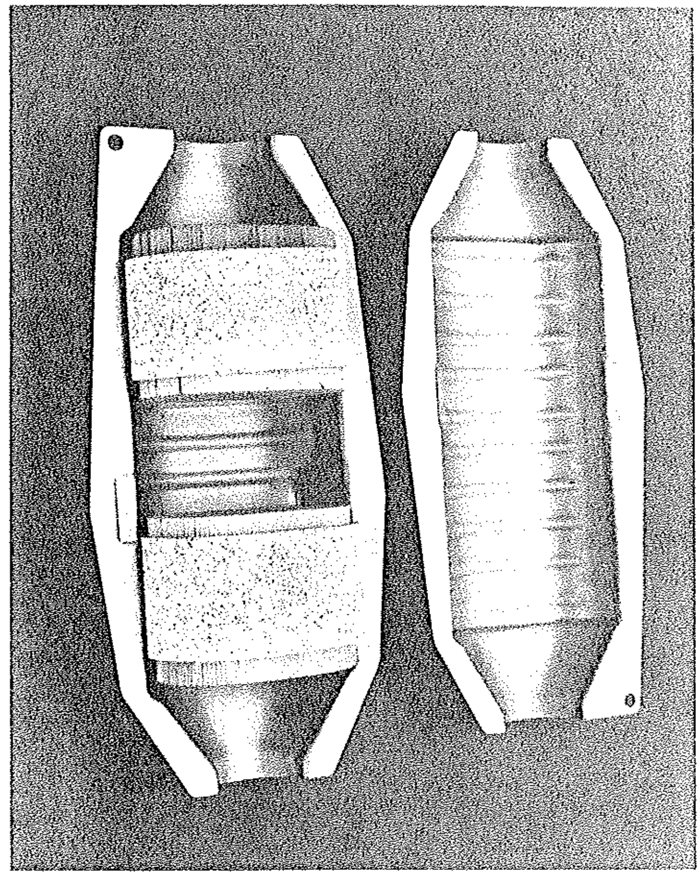
3. **Sequential multi-point fuel injection**
   For even better response to rapid throttle movements and a smoother, steadier idle, both the new 2.2-liter SOHC MPI VNT Turbo and the 2.5-liter SOHC MPI Turbo engines have sequential multi-point fuel injection. SMPI provides these benefits by injecting the fuel directly into each cylinder port at the precise time it is needed. To further enhance idle quality, the computer control system used with SMPI activates the injectors at a different point in the combustion cycle during idle than during other engine operating conditions. It also provides a selective fuel shut-off during deceleration to reduce exhaust emissions.
   In Dodge engines, the fuel delivery system is the link between the fuel tank and the fuel injection system. Actually, the link is composed of two separate circuits which form a closed loop. The first portion of the loop (the fuel supply circuit) delivers a constant flow of fuel under pressure. Since the engine only requires a small portion of the delivered fuel, the remainder of the fuel (when pressure opens the fuel pressure regulator) is returned to the fuel tank through the second portion of the loop—or fuel return circuit.

FUEL DELIVERY AND EXHAUST SYSTEMS

The 3-way catalytic converter oxidizes all three exhaust emissions—hydrocarbons, carbon monoxide and nitrogen oxide.

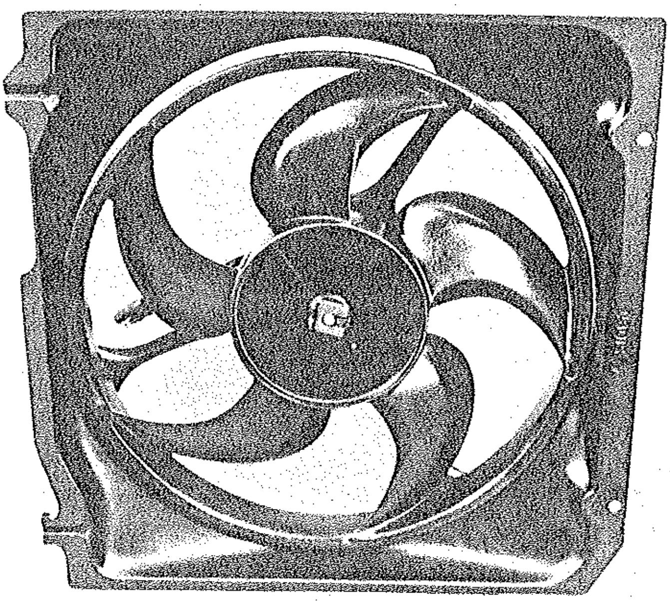
The catalytic converter, which is mounted between the engine and the muffler, consists of a stainless steel shell that houses ceramic honeycomb monolithic elements that are coated with noble metal catalytic agents. The monolithic element is separated from the shell by a stainless steel mesh, which helps to protect the honeycomb element by providing a spring-type shock-absorbant mounting. The noble metal catalyst in the converter causes a heat-releasing reaction to occur in the exhaust gases that oxidizes and reduces emissions to meet clean-air standards. Unleaded gasoline must be used with all catalytic-converter systems, as leaded gasoline would coat the catalyst, rendering it ineffective.

A stainless steel exhaust system is standard on all vehicles. All pipes, hangers, the catalytic converter housing, and the muffler are made of a corrosion-resistant stainless steel alloy developed specifically for exhaust systems.



3-way catalytic converter

ENGINE COOLING SYSTEMS



Cooling fan

Electric motor-driven fans

On transverse-mounted Dodge four-cylinder engines, the electric motor drives the engine fan only on demand. The fan is computer-controlled to improve fuel economy. The control is based on coolant temperature and engine speed. On air conditioned cars with an electric fan, the fan runs whenever the air conditioner is on, or whenever needed.

Coolant recovery system

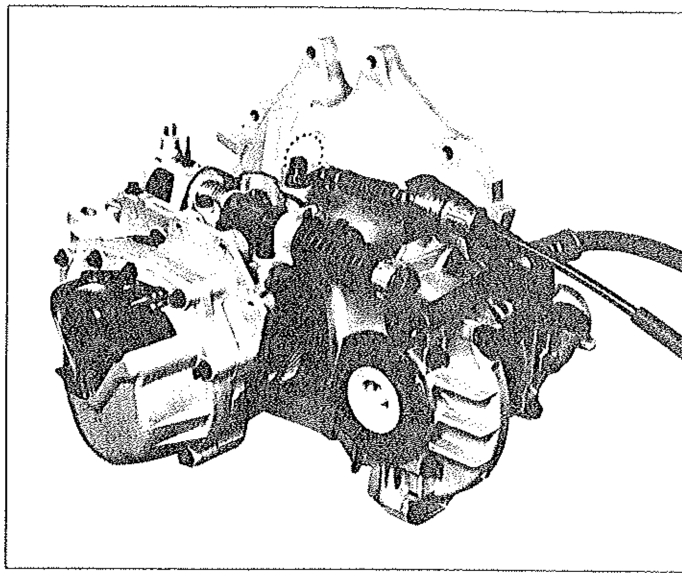
All Dodge engines have a coolant recovery system for their radiators. This system eliminates coolant loss caused by expansion of the coolant when the engine is operating under hot conditions—or when the car is driven off an expressway for a rest stop and the hot engine is shut off. Instead of overflowing onto the ground, the expanding coolant is piped into a reserve tank to be recycled into the radiator when the engine cools down.

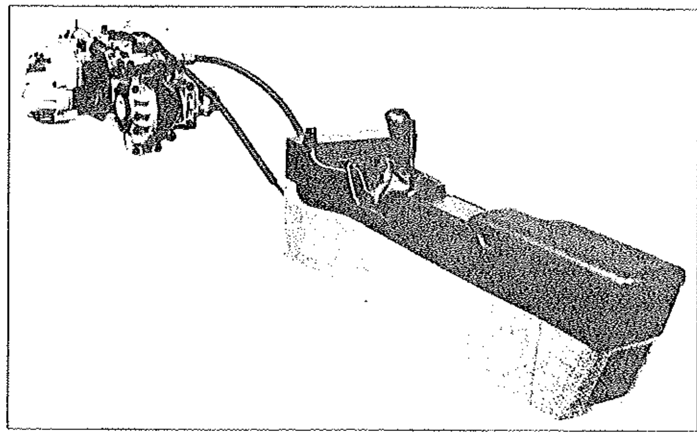
This system also minimizes the necessity of removing the radiator pressure cap to check the coolant level. Instead, the coolant can be checked simply by observing the fluid level in the reserve tank.

MANUAL TRANSAXLE

New five-speed manual transaxle
A completely redesigned five-speed manual transaxle, either available or standard on all Dodge passenger cars except Dynasty, Omni and Monaco, features a new shift pattern and a number of improvements over the previous five-speed manual transaxle. It features quicker shifts with reduced shift effort, decreased fore-and-aft shift travel and a more "positive" feel. Some of the features that provide these benefits include redesigned shift forks, a redesigned 1-2 synchronizer, Teflon-lined bushings for the shift rails, a patented interlock mechanism that prevents the selection of more than one shift rail at a time, and a new clutch that uses a non-asbestos friction material to help reduce the incidence of asbestos in the atmosphere.

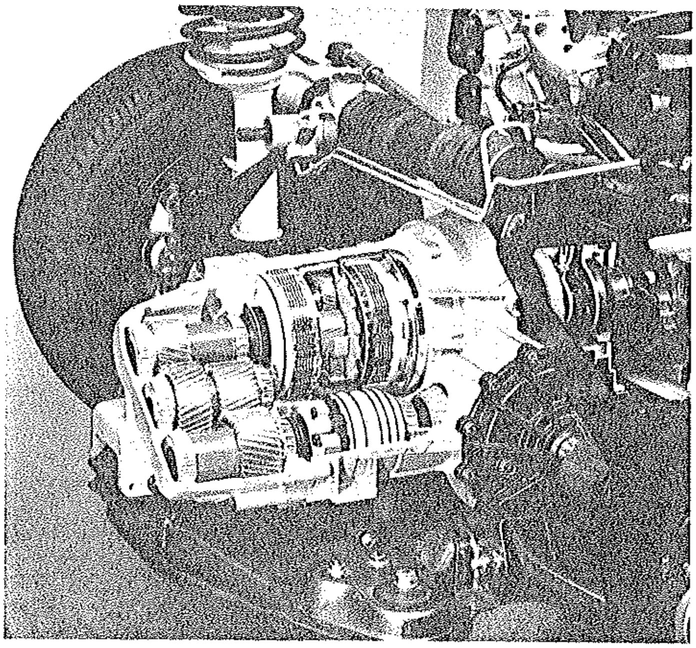
The completely redesigned shifter has a new "three-plane" shift pattern with reverse opposite fifth gear rather than to the left of first. This new system eliminates the previously used reverse lock-out ring. Other new shifter features include a new centering spring system that provides positive return and reduces free play, and a new one-piece ball socket that provides a closer fit to the ball to reduce free play and noise in the shifter. New cables feature more direct routine for reduced friction, improved sealing for reduced passenger compartment noise plus less possibility of cable corrosion, and urethane end fittings for a smoother feel. On Shadow and Spirit, the shifter is urethane-mounted to reduce transmission of engine noise the passenger compartment. A new "cut-and-sew" shift boot on Daytona provides excellent low-temperature resilience so that its effect on shift effort is minimal in cold weather. On all models, a resilient, ergonomically designed "cobra-head" shift knob provides an attractive appearance and a comfortable grip for the driver.


New 5-speed manual transaxle

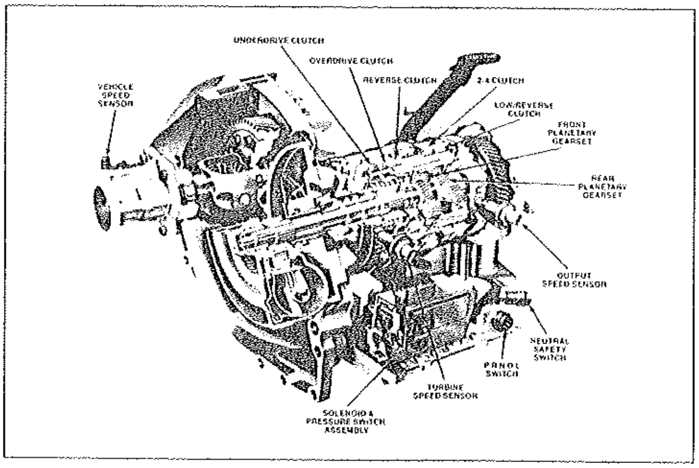

5-speed manual transaxle with center console

1990 Dodge ENGINEERING

AUTOMATIC TRANSAXLES



Monaco transaxle



Ultradrive 4-speed automatic transaxle

TorqueFlite automatic

The TorqueFlite automatic transaxle has three forward-speed gears, a torque converter for smooth agile acceleration and a precision automatic shifting assembly for high-quality shifts.

- **Features of the** Chrysler-built TorqueFlite automatic transaxle that help to increase reliability include impeller blading that is computer-designed for improved fit to the impeller shell. This ensures better brazing which, in turn, improves converter performance.

An electronically controlled, "Ultradrive" four-speed automatic transaxle minimizes noise, improves speed and smoothness of response as well as shift quality—yet it is compact and weighs only ten pounds more than the transaxle it replaces. It is also less complex, with 20 fewer parts.

Fully adaptive electronic controls make the difference. They provide kick-down shifts with unmatched smoothness, thus giving the power train a more responsive feel with no increase in harshness. The adaptive controls compensate for changes in engine or friction element torque. This provides good consistent shift quality for the life of the transaxle.

Forward ratios are 2.84,1.57,1.0, and 0.69 to 1 with lockup available in the 4th gear. The shift quadrant has six positions: R, N, OD, D, and L. When OD is selected, the transaxle shifts normally through all four speeds. OD is recommended for most driving.

- **Ultradrive refinements for 1990**
  For 1990, the Ultradrive transaxle has been improved to provide even smoother operation. Sequential closed-throttle downshifts have been added that cause the transaxle to shift sequentially through all the gears as the car decelerates. It no longer skips the third to second gear downshift. This makes downshifts smoother and makes second gear immediately available without a kick-down if the driver decides to accelerate before coming to a complete stop.
  The logic of the transaxle control computer has been altered so that cyclical downshifts and upshifts will not occur when climbing a grade at highway speeds. After a downshift to third gear, the computer allows a subsequent upshift only if the torque required to maintain vehicle speed will still be available in fourth gear (overdrive).

Electronic lockup torque converter

All front-wheel drive Dodge models (except those equipped with the turbo engines) have an electronic lockup torque converter to help improve fuel economy. A computer acts in response to engine load (as determined by throttle position) and vehicle speed. The torque converter is used for power and smoothness while accelerating in first and second gears until a cruising speed is reached. Then, after the transaxle upshifts from second to third gear, the clutch locks up the torque converter so there is a direct mechanical drive through the transaxle. Normal slippage in the converter is eliminated, engine speed is reduced and fuel economy is improved. The lockup clutch disengages during part-throttle or full-throttle acceleration, and when the vehicle is decelerating. The lockup feature does not affect cold engine driveability because it will not be activated until engine coolant temperature exceeds 120°F.

Monaco ZF 4-speed automatic transaxle

For smooth, low-speed operation in third gear, the ZF transaxle features a 60/40 split of power between the gear train and torque converter...as well as a reverse gear lock-out. The gear lock-out prevents accidental engagement of reverse while the vehicle is moving forward at speeds in excess of 25 miles-per hour.

In the event of a transaxle electronic malfunction—or if one or more of the input sensors should fail—the transaxle memory feature causes the transaxle to shift into third gear hydraulically. If either occurs, only the third and reverse gears is available until the problem is corrected. The ZF transaxle is available only with the Monaco 3.0-liter V-6 engine.

NOTE: See "Power Train" page in the car line sections of this book for specific model availability of various transaxles.

SUSPENSIONS—DOMESTIC FRONT-WHEEL DRIVE MODELS

All Dodge passenger car models and the Caravan use strut-type, independent front suspension with coil springs. Some Dodge models feature sport and/or special handling suspensions as standard or available equipment. These include heavy-duty and specifically designed components which may vary from model to model. All Dodge suspension systems are designed to provide simplicity, light weight and low service requirements.

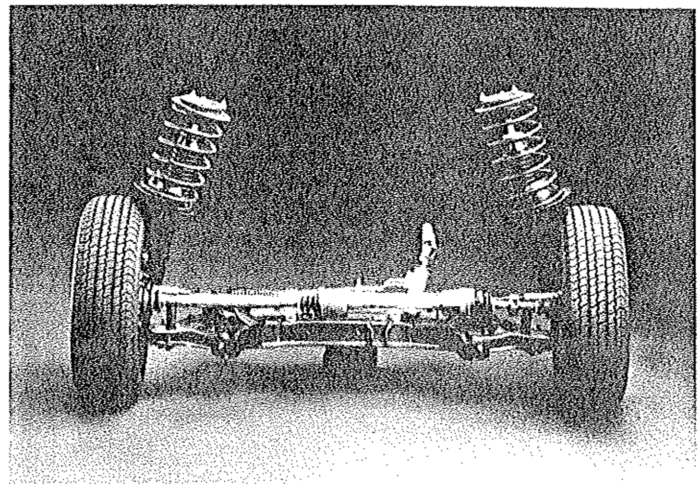
Front suspension struts except those used on Monaco and Omni have an upper strut rod shield which prevents dirt and splash from reaching the strut rod and urethane jounce bumpers. The **upper mounts** for the front suspension **have dual paths** for isolating noise and vibration—one path receives and damps shock absorber loads, the other path receives and damps spring loads.
The dual-path design is thus effective in isolating shock absorber and spring generated disturbances from the vehicle.

The front suspension is fully independent, with a one-piece strut assembly tower in the body, jounce bumpers, and isolator rubber bushings.

Position-sensitive front suspension struts except those used on Monaco and Omni increase damping in order to reduce ride harshness and noise—whenever the car hits a sharp rise in the road or passes over a pot hole. To achieve this, a portion of the strut cylinder walls have a number of narrow longitudinal grooves cut into them.

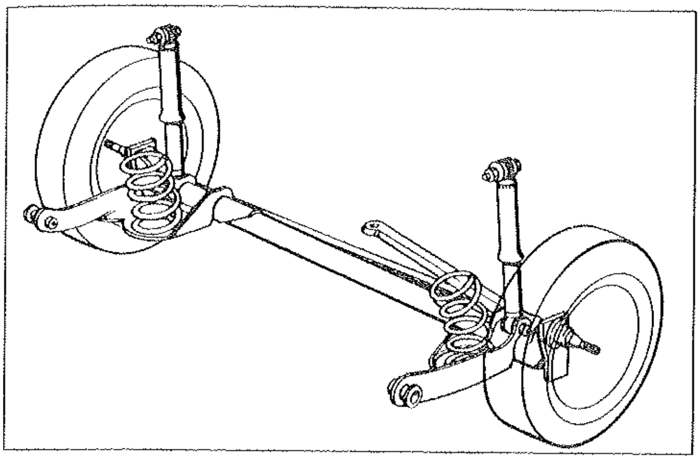
On certain models, the standard struts and shocks are gas pressurized. The gas-pressurized shocks and struts may also be part of the heavy-duty or sport handling suspensions. They provide several advantages over non-pressurized suspension struts and absorbers:

- improved ride quality with a reduction in harshness
- better adaptation to more kinds of road surfaces
- reduced control loss from fluid aeration and heat build-up
- reduced noise transmission
- improved handling

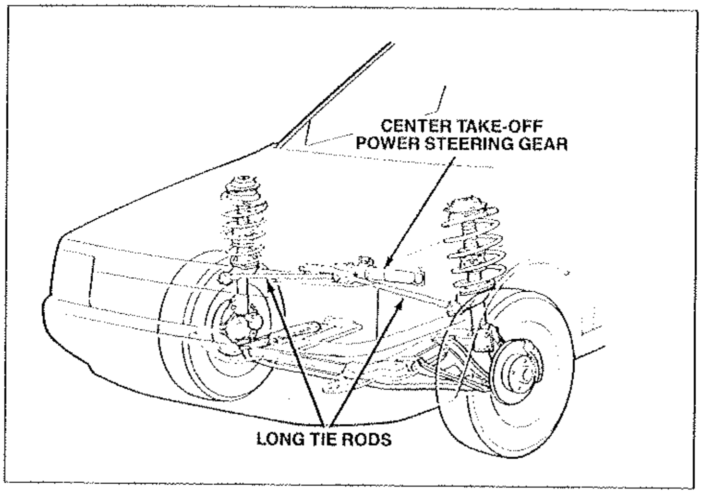


Typical Dodge front suspension

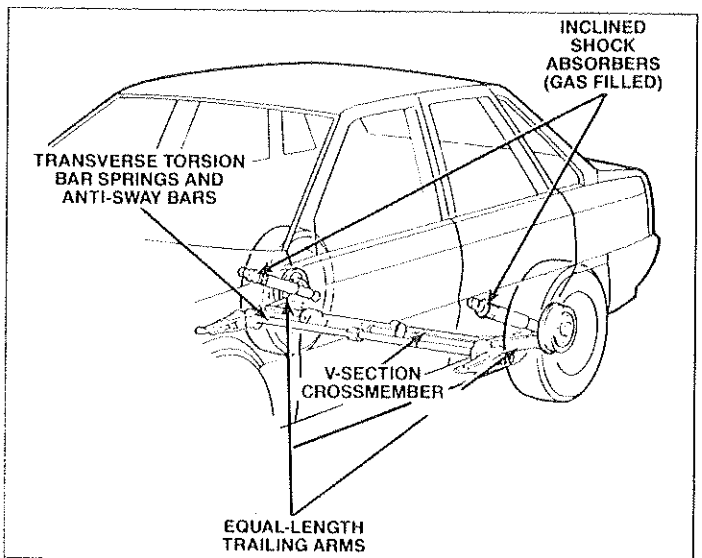
SUSPENSIONS



Typical Dodge rear suspension



Monaco front suspension



Monaco rear suspension

The rear suspension used on all Dodge passenger models except Omni, Caravan, and Monaco has shock-absorbers mounted adjacent to low-rate coil springs. The wheel spindles are carried by an inverted U-section beam axle; two trailing arms connect the axle and suspension assembly to the car structure. Oval trailing arm bushings, first introduced on the Dodge Dynasty, are also used. A torsion-tube inside the axle provides anti-roll control. A track bar is attached to pivot points on the beam axle and a body-mounted bracket contributes to the control of lateral suspension movement. The rear suspension design is highly compatible with the Iso-Strut front suspension, is light in weight and contributes to excellent ride and handling characteristics. Omni utilizes a semi-independent trailing arm axle. Caravan utilizes a tubular axle with leaf springs.

Monaco

The independent front suspension on Monaco uses coil springs, MacPherson struts, and an antisway bar. Its negative-offset geometry provides stability and excellent handling in conjunction with the car's dual-diagonal brake system. Lower control arms are inclined toward the front of the car to resist front-end "dive" under heavy braking loads. The front suspension design is space efficient and helps control unsprung weight.

Monaco's rear suspension features trailing arms with programmed deflection control supplied by a V-section crossmember. The system uses two transverse torsion bars mainly as suspension springs—and a separate set of torsion bars for antisway control. Steeply inclined high-pressure gas-charged shock absorbers provide control as the trailing arms move through the jounce and rebound. The rear suspension design is compact and has a low unsprung weight for a smooth ride.

ES models feature a unique suspension tuning for the sports-minded driver...with the front suspension modified by the addition of stiffer springs.

SUSPENSIONS

Sport and/or special handling suspensions with heavy-duty components are standard or available on some 1990 Dodge models. The components of these systems vary according to model. (See model sections of this Data Book for details.)

Automatic electronic rear load-leveling and height control Available only on Dynasty and Dynasty LE. Not available with Firm Ride and Handling Suspension, Code SDC. This system provides a level stance and proper headlight aim even when the rear compartment of the vehicle is heavily loaded. It is also designed to maintain that stance and aim when towing a trailer.

As passengers enter the rear compartment of the vehicle or as luggage is added, or the weight of a trailer and trailer tongue is exerted on the rear bumper—air pressure is automatically supplied to inflatable rubber sleeves that surround the rear shock absorbers. These then raise the rear suspension to compensate for the added weight.

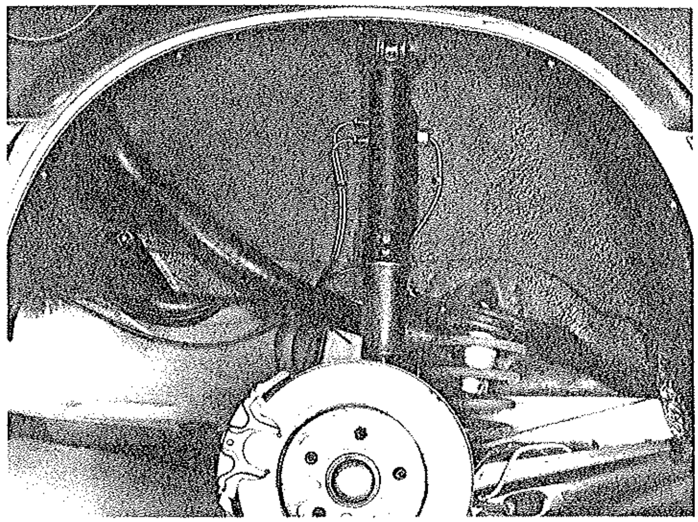
The heart of the system is an electronic height sensor which is linked to the rear suspension track bar. To supply pressure to the sleeves, the system incorporates a small electric motor-driven compressor which is activated when the ignition is turned on. Height adjustments are delayed for approximately 20 seconds so that the system will not conflict with normal ride motions. To prevent compressor damage in case of system overloading or an air leak, an electronic timer limits compressor running time to approximately two minutes.

Driver-selectable suspension damping on the Daytona Shelby gives the driver a choice of FIRM, NORMAL or SOFT settings. Two console-mounted switches allow for the selection of maximum damping (FIRM) for improved handling and sharper braking and cornering response or minimum damping (SOFT) for excellent ride comfort. The NORMAL setting offers a compromise between these two extremes.

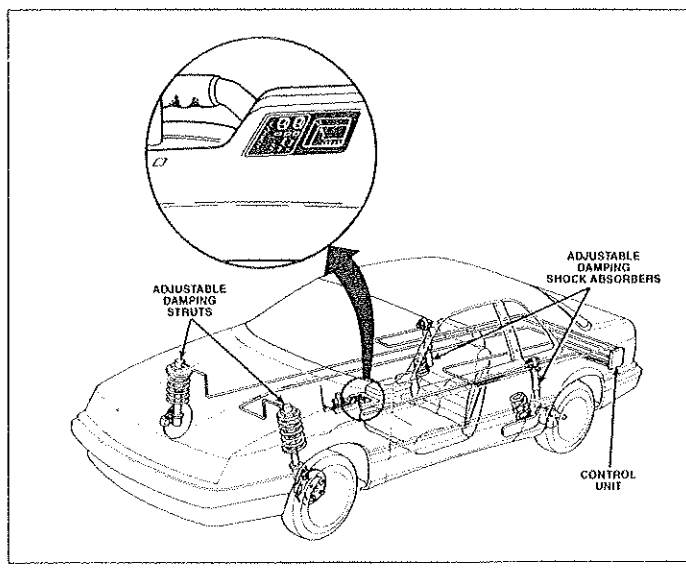
The system utilizes special adjustable damping front struts and rear shocks in combination with an electronic control unit. Within each individual shock and strut unit there is a small electric motor and gear train that controls a shutter system. The shutter moves to select one of three pairs of oil orifices, each of which provides a different level of damping action.

In addition to operating the electric motors, the electronic controller also monitors the position of each unit to make sure that it corresponds to the setting selected by the driver. In addition to these control functions, the control module contains on-board diagnostics. If there is a system failure, the controller will default to the NORMAL setting.

A graphic display and LED's mounted on the switch bezel inform the driver of the current setting and show how to select each option. The damping control is operated by two push-on, push-off switches. One selects FIRM setting and the other selects the SOFT setting. Only one switch can be "on" at a time. When both are in the "off" position, the system is in the NORMAL mode.

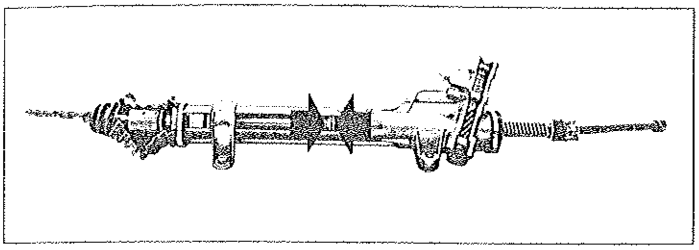


Load-leveling suspension



Driver-adjustable suspension

STEERING AND STEERING GEARS



Power-assisted rack-and-pinion steering gear and linkage with front-wheel drive Dodge models

Rack-and-pinion steering—all models
This steering is engineered for low turning effort, good returnability and excellent stability. A negative scrub radius, designed into the steering geometry, improves directional stability and straight-line braking by making the steering less susceptible to forces transmitted by road irregularities and braking action.

Power-assisted steering
Power-assisted steering is standard on all models except Omni America. A power unit with this steering greatly reduces the effort required to turn the front wheels. And a lower pulley ratio used with power steering provides faster steering response—less turning of the steering wheel is required for any specific turn.

A quick ratio and a high-flow rate power steering pump are features of the steering system. This combination provides quick steering response and precise steering control.

(See car model sections of this data book for availability of steering components and steering ratios.)

1990 Dodge ENGINEERING

BRAKES

Dual diagonal braking systems are used on all Dodge models. One hydraulic system controls the brakes for the left-front and right-rear wheels; the other system controls the right-front and left-rear wheel brakes.

Dual diagonal brakes will provide 50 percent of the system's full stopping power if ever either side of the system should fail to operate.

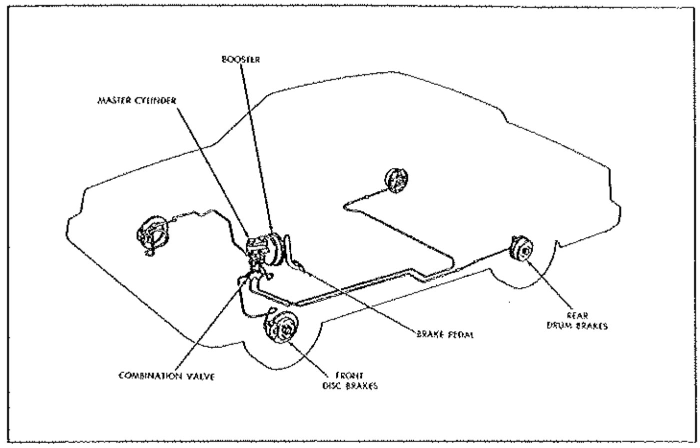
Front-disc brakes are used on all Dodge car lines because of their ability to dissipate heat quickly and provide excellent front-to-rear brake balance for superior directional stability. Also, front-wheel brakes receive a higher percentage of the braking load because of the forward shift of car weight when brakes are applied.

Dodge Monaco features power front disc and rear drum brakes with a dual-diagonal hydraulic system. For quick response and even wear, the front disc brakes feature vented, composite iron/steel front rotors, pin-slider brake calipers and non-asbestos, semi-metallic lining on the front shoes. The self-adjusting rear brakes feature riveted non-asbestos lined shoes and composite iron/steel drums.

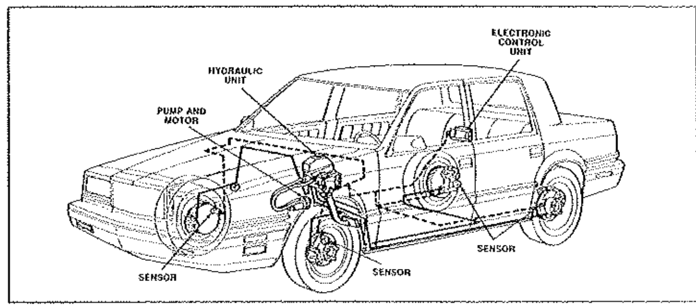
Antilock disc brakes
(Available as an option only on Dynasty LE)
This electronically controlled system, used in conjunction with four-wheel disc brakes, substantially improves the car's stability during braking on wet or slippery surfaces because it prevents the brakes from locking. It also allows the driver to maneuver the car under the same conditions.

The system automatically pumps the brakes several times per second whenever antilock action is required. This is brought into action through an electronic control unit which senses the speed of each wheel. When any one of the four tires starts to skid, the system makes the tire work at its peak friction level to achieve minimum stopping distance.

Hydraulic pressure is selectively modulated. If only one front brake starts to lock, only the pressure to that brake is reduced. If either rear brake starts to lock, pressure to both rear wheels is reduced. The single hydraulic supply has a fluid level sensor to trigger BRAKE or ANTILOCK warning lights on the instrument panel.

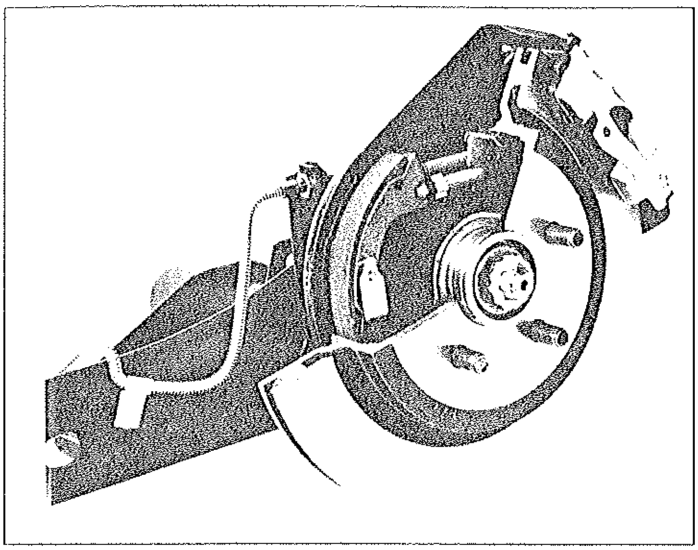


Dual diagonal braking system

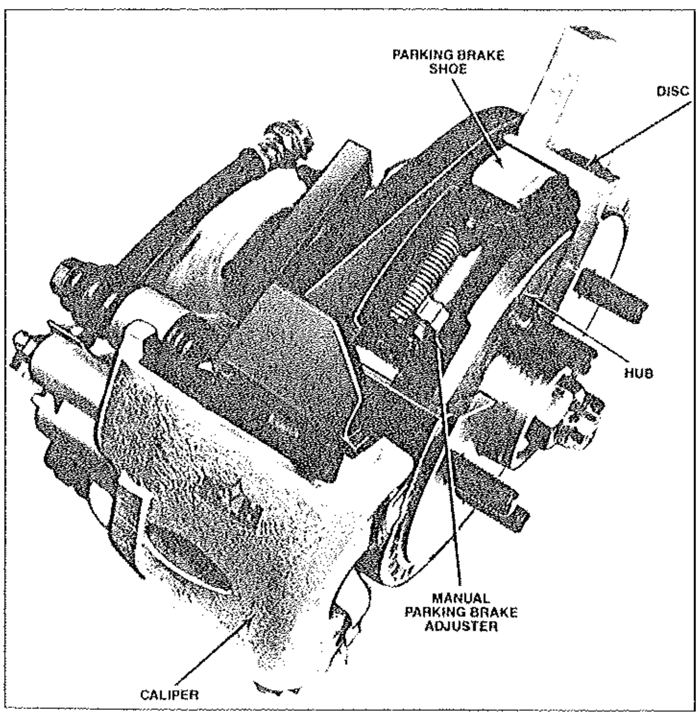


Antilock brake system

BRAKES



Ultra high performance 4-wheel disc brakes (rear)



Rear disc brakes with drum-type parking brake

Ultra-high performance ventilated four-wheel disc brakes
These brakes, with a total swept area of 425.42 square inches front and rear, are standard on Daytona Shelby and Daytona ES Turbo! They feature large front rotors with wide calipers, and vented rear rotors (also with wide calipers). High speed, fade-resistant, non-asbestos linings, front and rear, assure brake balance during hard use. These brakes have excellent fade resistance and are performance competitive with other high-performance sports cars.

Front-ventilated four-wheel disc brakes
Shadow ES features these brakes which have a total of 380.3 square inches of swept area, front and rear. The front rotors are ventilated to assure rapid heat dissipation during hard braking. The rear brakes have pin slider calipers and solid rotors. A special tandem master cylinder and specially calibrated proportioning valve are used to balance the front and rear braking forces.

Self-adjusting rear drum brakes are standard on all 1990 Dodge models except cars equipped with 4-wheel disc brakes. These brakes adjust automatically for proper lining-to-drum clearance. Manual brake adjustments are not required.

Power-assisted brakes
Power-assisted brakes are standard on all 1990 Dodge models. A power booster relieves the driver of much of the braking effort and brake-pedal travel is reduced with power brakes.

Rear disc brakes with drum-type parking brake
These brakes, also known as "drum-in-hat" brakes, are used with rear disc brakes. The center section (or "hat") of each rotor acts as the drum. The brakes are actuated by a conventional cable system and are manually adjustable; brake lining materials are specifically selected for the parking function. Available on Daytona and Shadow when equipped with power assisted 4-wheel disc brakes.

TIRES AND WHEELS

Steel-belted, radial tires are standard on all Dodge models
Dodge installs steel belted radial tires on all car lines at the factory as standard equipment. The steel-belted tires have long life expectancy and high resistance to road hazards—and are tougher than the glass-belted radial tires used previously on some models.

Depending on model, these tires are either of an all-season (mud- and snow-rated) design or a handling/performance oriented design.

All-season tires possess a unique combination of ride and handling characteristics, while also providing long tread life, low rolling resistance for fuel economy, and excellent all-weather traction.

Performance tires are designed to match the enhanced qualities of sport-oriented vehicles.

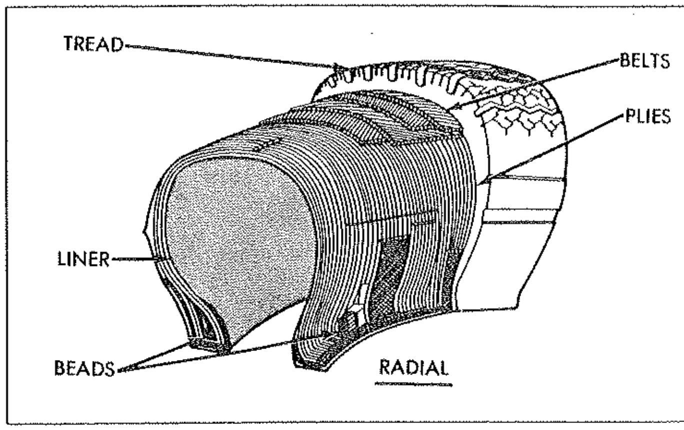
- **Radial tires can help improve fuel economy—according to tests at Chrysler Motors proving grounds**
  Because radial tires have less rolling resistance than bias tires, they help improve fuel economy—and because of their sidewall construction, they provide excellent traction and roadability. Radially constructed tires have flexible sidewalls that allow them to flex independently of the tread—so the tread stays on the road surface when the car is cornering.

About metric tire sizes
The standard tire for Dodge Dynasty is given in the metric ɔe P195/75R14. This tire-size designation conforms with the .ernational Standards Organization (ISO). Here's how to read tire size: "P" means passenger car; 195 indicates a nominal tire width of 195 millimeters; the 75 is the tire height-to-width ratio or aspect ratio (this means the height of the tire is 75% of the tire width); 70 means the height is 70% of the tire width; 60 means the height is 60% of the tire width. The "R" means radial-ply tire; and the 14 indicates the wheel rim diameter in inches. (This dimension is not converted to millimeters.) The letters H and V on performance tires are European speed designations. These letters occur just before the R for radial as in 195/60HR14.

NOTE: See tire charts in car line sections of this book for tire sizes and availabilities.

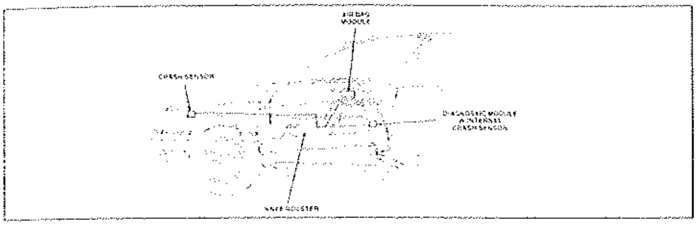
Wheels are built for strength, safety and durability
The standard wheels on most Dodge models are made of stamped steel for strength. Aluminum alloy wheels, optional on many models, are also strong and corrosion resistant with the added benefit of lighter weight.

All-weather tires
These tires are standard on several Dodge cars. They reduce tread noise better when they are new or partially worn. Their tread pattern channels water, slush and snow from under the tire so it can better grip the road. Usually a change to snow tires in winter is unnecessary with these ɔes.

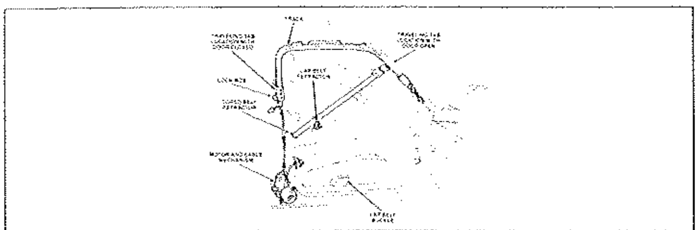


Radial tire construction

SAFETY FEATURES



Air bag passive restraint system (driver's side)



Motorized Passive System

The following safety features are standard equipment on all North American-built Chrysler Motors automobiles:

- Safety-Rim wheels
- Combination lap-shoulder belts for the driver and right-front passenger and rear outboard passengers; lap belts for all other passengers
- Seat belt reminder system
- Energy-absorbing steering column or steering wheel
- Dual braking system with separate brake-fluid reservoirs in the master cylinder
- Warning lights for: Air bag system malfunction (on cars so equipped), high headlight beams, parking brake on, brake system pressure loss, seat belt reminder and check engine (on models with electronic fuel injection)
- Hazard warning flasher system
- Turn signals with lane-change feature
- Electronic ignition
- Backup lights
- Energy-absorbing sun visors
- Front seat head restraints
- Energy-absorbing front seat backs
- Inside and outside rearview mirrors
- Side marker lights and reflectors
- Seat back latches on folding front seats
- Fade-resistant front disc brakes
- Electric windshield washers and wipers
- Ignition and steering column lock
- Anti-theft trunk lock
- Headlight and windshield wiper circuit breakers with automatic reset
- "Key-in-ignition" warning
- Nonoverride door locks* (except driver's door)
- Resilient window crank knobs
- Side door beams
- Interlocking door latches
- Recessed inside door release handles
- Reinforced windshield header and roof
- Glare-reduction measure for windshield wipers, instrument panel and steering wheel
- Safety glass for all windows
- Center high-mounted supplemental stop light

*Dynasty uses non-override door locks.

Air bag usage extended
All domestic-built Dodge passenger vehicles except Caravan and Monaco have driver-only air bag passive restraint systems mounted in the steering wheel. The system also includes an electronic control unit and several inertia sensors. When a front-end collision is detected by the system, the air bag is activated and inflates in about 50 milliseconds. The air bag system is the same concept as that first introduced as a running change in 1988 on Daytona but adapted to the specific requirement of each car model. It works in conjunction with the Unibelt active restraint system and a reinforced lower instrument panel, which acts as a knee bolster.

Fuel systems have collision and rollover protection
All fuel systems have features that provide protection against leakage during side, rear and angular front impacts. These features include sturdy fuel tank retention with longitudinal and lateral reinforcements, strong fuel tanks, reinforcements in rear body structural members and a rollover valve at the top of the fuel tank to prevent fuel leakage during a full 360 degree rollover.

- **Electronically fuel-injected engines** have an automatic shut down relay to deactivate the fuel pump on any impact that is sufficient to stop the engine.
- **Fuel tank location**
  The fuel tank is located under the car beneath the rear seat—where it's forward of the rear suspension and between the bodyside rails—giving it protection in the event the car is subjected to rear or side impacts. The lightweight aluminum filler tube is sealed by a screw-type filler cap. A 5" nylon tether on all models attaches the filler cap to the car—so you don't leave the cap behind at fuel stops.

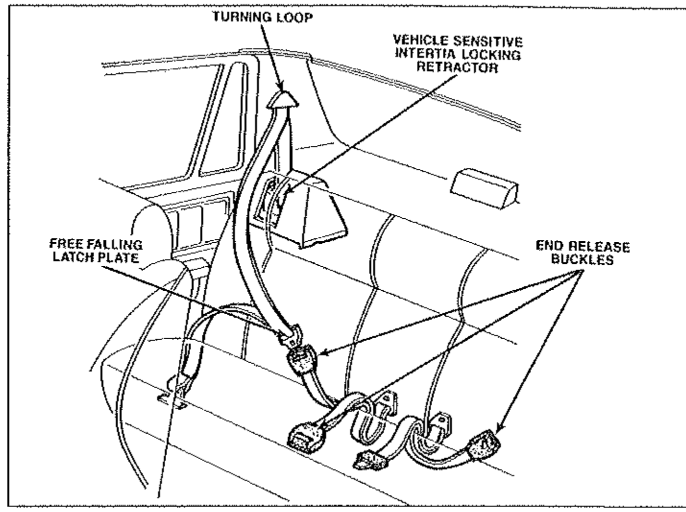
Monaco and Colt feature motorized passive seat belts for the driver and front seat passsenger. Although these motorized seat belt systems differ somewhat from one model to the other, they all operate in a similar fashion. The outboard end of the shoulder belt on each side is attached to a carrier which travels in a track across the top of the door opening. If the shoulder belt carrier is not in the forward position when the door is first opened, it immediately moves to that position allowing for ease of entry or exit. When the door is closed, and the ignition is turned on, a motor moves the carrier back to the rear position which causes the shoulder belt to wrap around the seat's occupant. For complete effectiveness, both the driver and front seat passenger must use the manual lap belts with the passive shoulder belts.

SAFETY FEATURES

Expanded use of low-tension Unibelt restraint systems
All 1990 Dodge passenger cars except Monaco now use comfortable, convenient-to-use low-tension Unibelt integral lap and shoulder belt restraint systems for front outboard passengers. Low friction components and a low tension retractor spring provide comfort in use without the need for a tension reliever. A free running latch plate allows webbing to retract and stow neatly at the turning loop each time that the belt is unlatched. These systems all have end-release buckles.

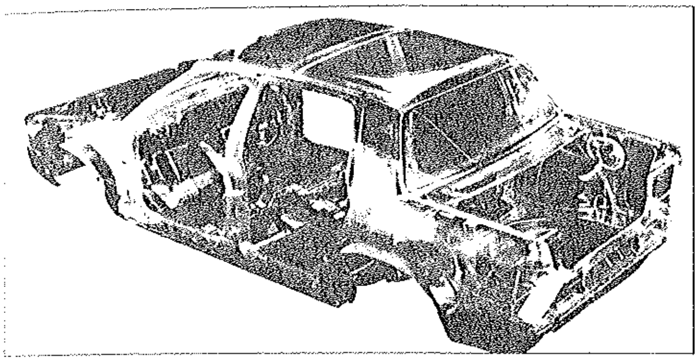
New dual-sensitive Unibelt retractors
On Dynasty, Daytona and Omni, dual-sensitive emergency locking retractors are used on the Unibelt integral lap and shoulder belts in front and rear outboard seating positions. The retractor provides a greater sense of security for the seat belt user by locking to restrain the occupant in response to either vehicle deceleration or webbing pullout acceleration.

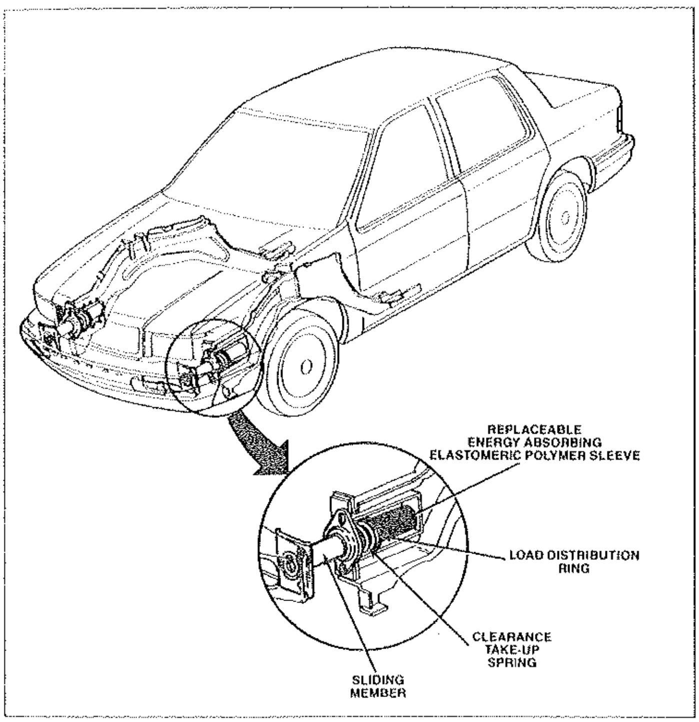
Rear Unibelt integral lap and shoulder belt restraint system
Unibelt integral lap and shoulder restraints for outboard rear seat passengers are standard on all 1990 Dodge passenger car sedans and hatchbacks. This system is similar to that introduced on the Spirit and Shadow in 1989. Low friction components and a low tension retractor provide comfort in use without the need for a tension-reliever. A falling latch plate slides freely along the belt when unlatched and is easy to find because it rests against a stop-stitch on the webbing just above the seat cushion surface when not in use.



Rear seat Unibelt

BODY CONSTRUCTION


Unibody construction



Elastomeric bumper system

Unibody

Tough Unibody construction—body sheet metal and structural members welded into one strong, unitized framework—is engineered into all Dodge models. The welded body members contribute their combined strength to the strength of the total vehicle. Structural strength extends throughout the entire body.

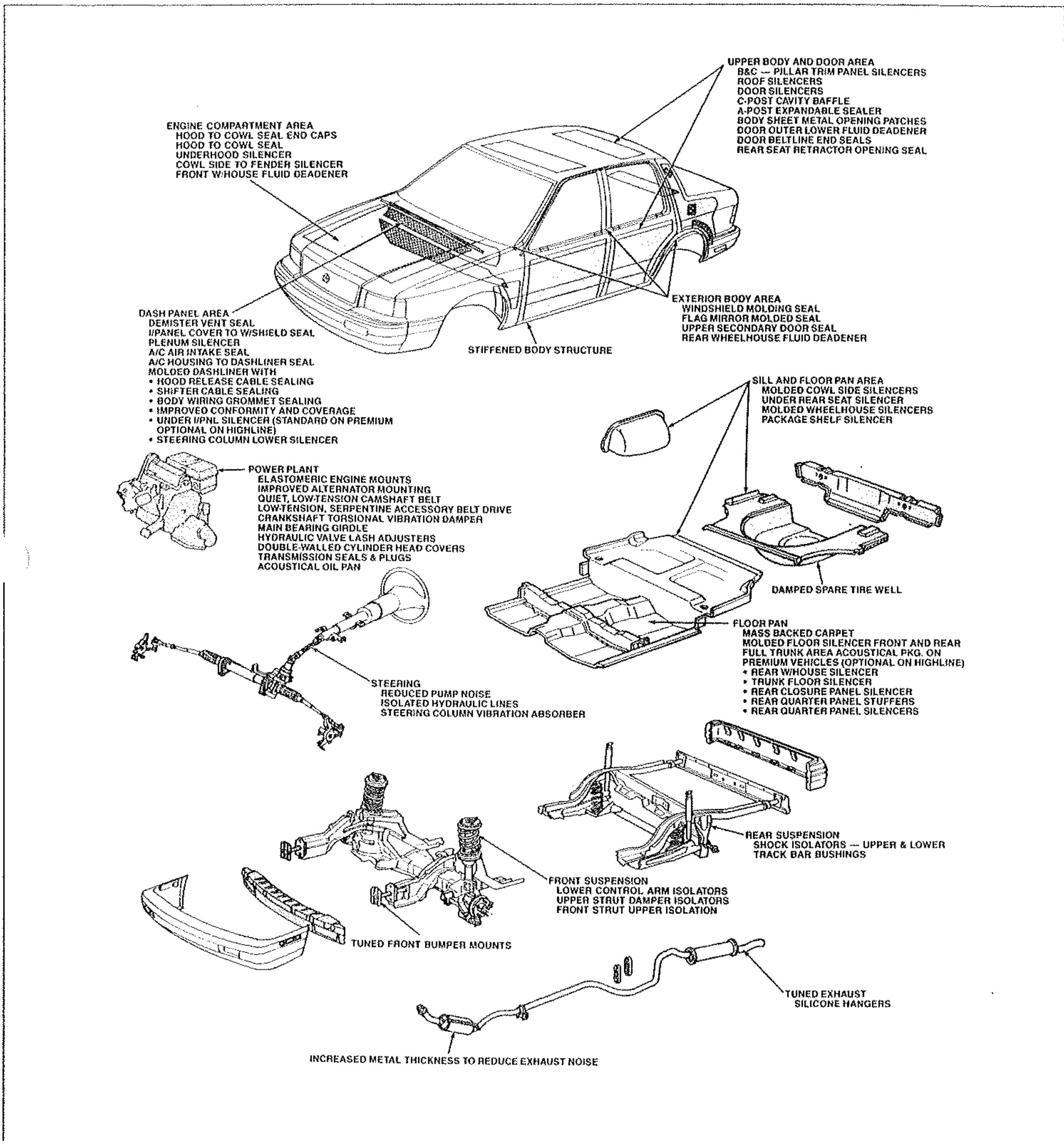
Body aperture panel development has contributed to improved body alignment and assembly and more precise door-opening dimensions. The aperture panel—which consists of the rear quarter panel, quarter roof panel, and sections of the door opening frames, roof side rail and bodyside sill—is a one-piece precision stamping. Previously, these body panels were welded together, making it difficult to maintain precise engineering tolerances.

Box-section construction is used for windshield pillars, roof side rails, bodyside sills, door opening frames and lower body structural members where extra strength is required. This steel construction is used on all Dodge car lines.

Inner and outer roof panels are bonded and welded together for double panel strength. Roof bows, roof side rails and headers are formed of box sections when inner and outer steel panels are welded together.

Elastomeric energy absorbing bumper system. Daytona, Spirit and Shadow models are all equipped with the first bumper system in the Dodge model lineup to use "stroking" elastomeric energy absorbing units. Compared to the hydraulic energy absorbers previously used in 5 mph bumper systems, this new bumper system is both simpler in design and lighter in weight. Its unique elastomeric polymer energy absorber allows it to deflect and return to its original position during a 5 mph barrier collision.

SOUND DEADENERS AND QUIET RIDE

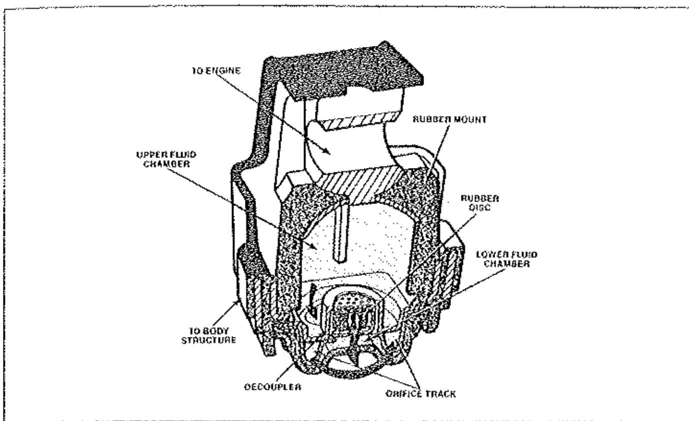


und-deadening materials (materials vary somewhat from carline to carline)

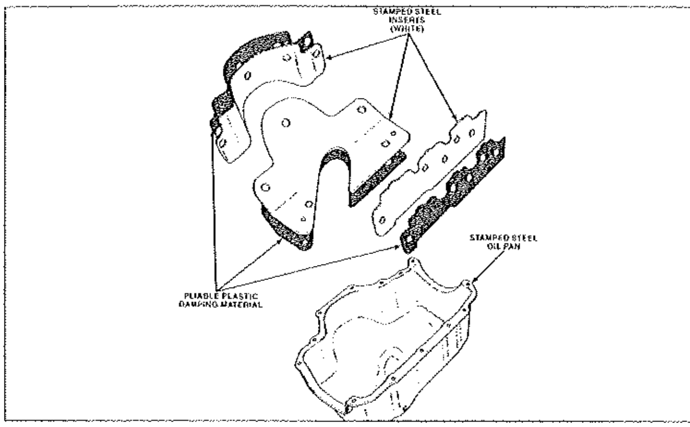
Dodge uses innovative approaches and the latest technology to control noise, vibration and harshness, and to produce cars with the highest degree of quietness in Chrysler's history.

The most extensive use of acoustic cavity stuffers and mastic patches ever is now being installed in new Dodge vehicles.

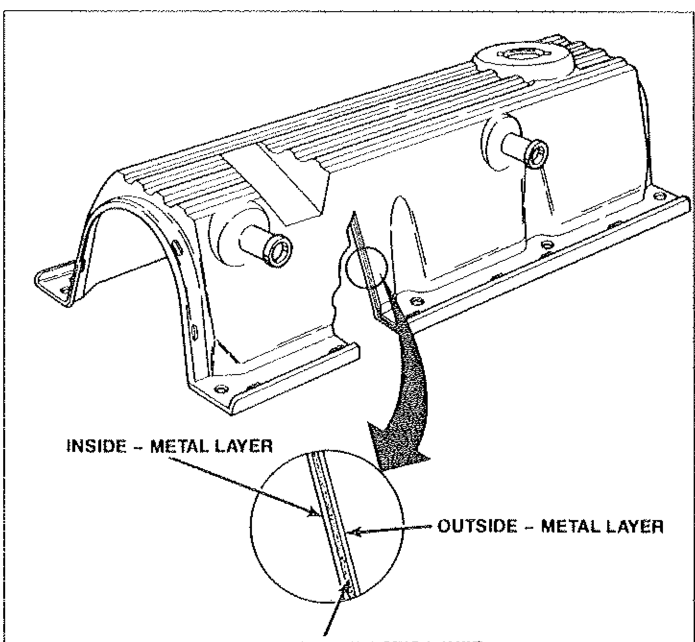
SOUND DEADENERS AND QUIET RIDE



Hydro-elastic engine mount



Acoustic oil pan



Acoustic cylinder head cover

How Dodge achieves smooth, quiet running

Many features are designed into Dodge cars to reduce noise, vibration and harshness, and to provide outstandingly quiet passenger compartments. This remarkable degree of quietness in front-wheel drive cars represents an engineering advance involving the highest technology in automotive sound deadening.

- Linkless front antisway bar and lower-rate coil springs
- Low-rate front suspension control arm strut bushings
- Low-rate front suspension strut upper mounts
- Low-rate rear suspension trailing arm pivot bushings
- Low-rate rear suspension springs
- Rear suspension spring lower seal isolators
- Soft engagement rear jounce bumpers
- Low-rate track bar bushing
- Premium rear shock absorbers
- Special-ride tire
- Improved dash liner alignment and coverage
- Improved heater and air conditioner sealing
- Improved steering column silencer
- Bulkhead disconnect flange
- Improved under-instrument panel silencer
- Cowl-side silencers
- Air conditioner resistor-block sealing
- Windshield pillar sealing at belt area
- Windshield pillar molding seals
- Windshield pillar secondary door seals
- Windshield molding seals
- Larger secondary door seals
- Shoulder harness retractor seals
- Rear seat belt retractor seals
- Butyl tape on sill pinch welds
- Repatterned luggage compartment front liners
- Rear wheelhouse stuffers
- Molded rear wheelhouse silencers
- Mastic patches on inner sheet metal holes

Hydro-elastic engine mount

On Dynasty only in 1990, a hydro-elastic engine mount is used to provide a smoother, steadier ride than could be achieved without it. The mount improves the ride by damping engine shake when the car passes over a bump in the road. The desired result is achieved while maintaining isolation of engine vibrations from the passenger compartment. Conventional rubber mounts have been enlarged to achieve the same combination of results.

Quiet idle features

All engines (except those for Monaco) have an acoustic oil pan to help trap mechanical noise at idle speeds. Non-turbo engines, in addition, have acoustic cylinder head covers to serve the same purpose.

Turbocharged engines require only the acoustic oil pan because they already have aluminum cylinder head covers with noise damping characteristics superior to those of single-thickness steel.

Both pan and cover reduce noise in basically the same way. They're made from two thin sheets of steel with a layer of pliable plastic sandwiched between. This combination reduces vibration of the inner sheet of steel which otherwise tends to act like a speaker head cone or drum head.

ANTICORROSION TREATMENTS

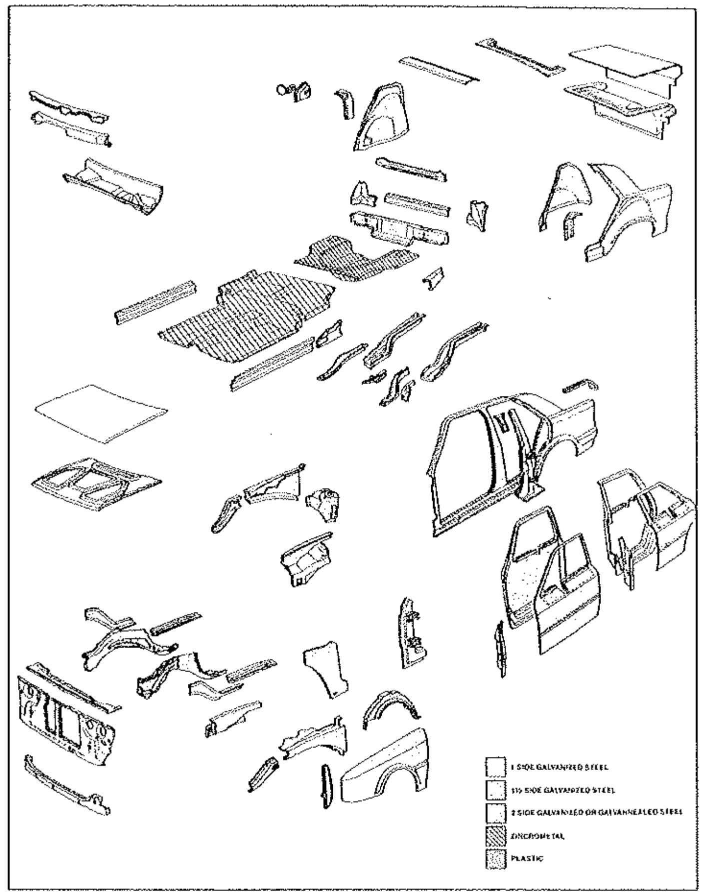
Extensive anticorrosion treatments protect all Dodge cars. Protection against corrosion begins with the bare sheet metal on every Dodge. Even before the metal is formed into body panels, it is coated to protect against corrosion. Galvanized steel is used extensively for many body panels. And still other panels are coated with zinc-rich primer, which retains its integrity even after forming or stamping.

When assembled, each car body is thoroughly cleaned and coated with special chemicals in Chrysler Motor's 8-step full immersion process for additional protection against all forms of corrosion.

Dodge protects against corrosion on domestically built models by the extensive use of galvanized and galvannealed steel materials, fiberglass, plastics, and special paints and primers.

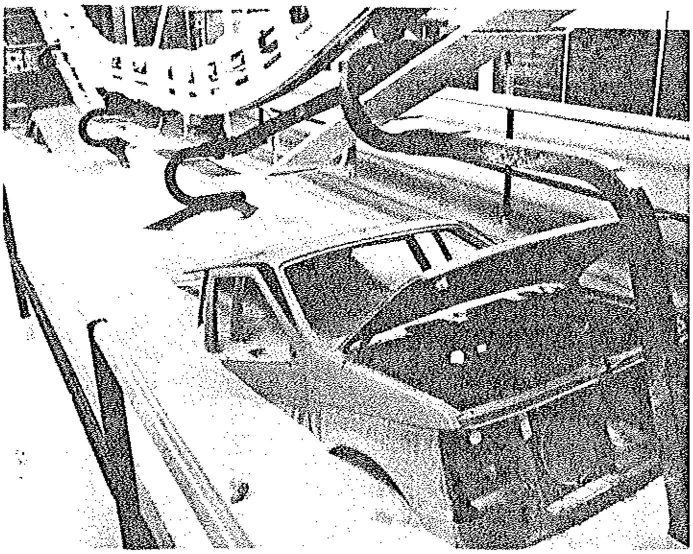
In addition, special emphasis is placed on isolating exterior ornamentation and moldings from body metal to prevent electrolytic action and corrosion between dissimilar metals. Lower body protection on cars is provided with a special stone-chip-resistant urethane coating. Chrome plating of bright trim and fasteners has been improved. Door hinges are bolted onto the body and are galvanized or zinc-plated on selected models. The door is covered with zinc-rich paint. Transparent tape on windshields, back windows and liftgate moldings helps prevent paint film breakthrough, particularly at the corners. Underbody and nderhood components receive a variety of primers and her treatments to prevent corrosion.

To protect against exterior cosmetic corrosion, all 1990 Dodge cars have a base coat/Clear Coat technology of acrylic enamel applied directly over the wet color coat. This coating resists abrasions, weathering and chemicals better than single-stage paint and provides a higher gloss.



Corrosion Protection

ANTICORROSION TREATMENTS



8-step full immersion treatments

(Domestically built models only)

1. **Cleaning dip.** Unibody is sprayed and then completely immersed in a hot alkali cleaner, then drained.
2. **Rinse dip.** Unibody is dipped and the complete body is sprayed in warm water to rinse off the cleaning solution, dirt and impurities.
3. **Conditioner rinse dip.** Unibody is dipped and sprayed with a solution to promote zinc phosphate coating, then drained.
4. **Phosphate dip.** Unibody is completely coated, inside and out, with corrosion-resistant zinc phosphate.
5. **Cold rinse.** Unibody is dipped and sprayed in cold water, then drained.
6. **Acid rinse.** Unibody is dipped and sprayed in a final sealer rinse for best paint adhesion and corrosion resistance.
7. **De-ionized water rinse.** Unibody is completely dip-rinsed in high purity, de-ionized water to remove any remaining process chemicals or contaminants which could reduce paint adhesion...or cause bumps in the paint.
8. **Primer dip.** All Dodge car bodies are treated to full immersion in the Uniprime* Electrolytic System. The body is electrically charged to cause paint to adhere uniformly to all areas—even those that are enclosed.

Durable, high-gloss finish coatings

The finish coatings on all domestically built Dodges have a high-gloss finish with a lasting luster that results from applying acrylic enamel over epoxy primer. After the anti-corrosion treatments, each Unibody is completely immersed in and electroplated with tough epoxy primer. Then, it is oven-baked and sanded. Finally, two coats of color are applied, followed by two coats of clear enamel, wet-on-wet, then oven baked again to a glossy luster. Acrylic enamel is buffable and highly resistant to chipping, fading and corrosion.

High-gloss coat maintains sparkling luster

One hundred percent of domestically built Dodge models receive a clear coat of acrylic over a highly pigmented base coat. The clear coat not only resists abrasions better than paint, it also provides a higher gloss appearance.

The clear resin coat is applied over the body color wet-on-wet, and when oven-baked, provides a deep, high-gloss finish with a "just-waxed" look. The combined acrylic color enamel and clear coat have improved showroom appearance, and better resistance to weather and chemicals—for increased durability. Automatic-spray—booth and hand-spray coatings are applied as follows:

1. Automatic spray—acrylic enamel color
2. Manual spray—acrylic enamel color
3. Automatic spray—clear coat
4. Manual spray—clear coat

After spraying, the enamel and clear coat are oven-baked to a hard, durable, lustrous finish.

A pearl coat, available with some colors, is a clear coat applied over a special base color which contains high-glamor flecks of mica.

*Uniprime E Coat is a trademark of PPG Industries, Inc.

Special finish for Dynasty

On this Dodge model only, a two-component clear-coat has been developed which, under gloss meter analysis, produces a finish the equal of the best finish in the industry. The components are mixed at the spray gun. This is the first such application technique used in the United States.

MAINTENANCE REQUIREMENTS

Dodge engineers are engaged in a continuing search for new ways to reduce maintenance on all Dodge vehicles. Improvements in design and materials have led to the development of the following low-maintenance features:

1. Engine oil and filter. Dodge recommends changing engine oil every 7,500 miles or 12 months, whichever occurs first in normal service. Engine oil filter changes (in normal service) are recommended at 15,000-mile intervals or every 12 months, whichever occurs first. **On turbocharged engines,** the interval for the oil and oil filter change is every six months or 7,500 miles.

2. Automatic transmission (transaxle) fluid and filter. UltraDrive automatic has no recommended fluid or filter changes in normal operation. Only in severe service, as in trailer towing, it is necessary to change the fluid and filter—and then only every 15,000 miles.

3. Chassis lubrication. Down through the years, Dodge engineers have reduced the number of lubrication fittings in the chassis. Now, only ball joints and steering linkage have lube fittings—and they need to be lubricated only at 30,000-mile or 3-year intervals, whichever occurs first under normal driving conditions.

4. Electronics. Electronic ignition—no ignition points or condenser to replace. Electronic voltage regulator—no moving parts to fail—maintenance-free. Electronic spark control system—no mechanical spark-advance flyweight system to wear out and replace. An on-board diagnostic feature is designed into the engine control electronics on all engines to reduce dependence on special tools and off-board testers when troubleshooting electronic systems.

5. Spark plugs. Dodge recommends spark plug changes every 30,000 miles with unleaded gasoline, under normal driving conditions. All spark plugs have copper cores, longer cores and longer core insulators for greater resistance to spark plug fouling and reduced maintenance.

6. Battery test indicator. Standard on all batteries used in Dodges. Lets you check your battery condition at a glance. Green dot means your battery is fully charged; black dot means battery needs recharging; yellow dot means battery condition is questionable and the battery, therefore, should be replaced.

7. Maintenance-free battery. Dodge cars use a maintenance-free battery. This battery does not require the addition of water during its normal service life—38 to 40 months. Each battery is completely sealed except for gas venting ports at the top; there are no filler caps. The battery posts and the battery-condition indicator are on top of the battery.

8. Engine antifreeze coolant. Initial drain, flush and refill interval is 3 years or 52,500 miles. (On Colt and Colt Wagons—2 years or 30,000 miles)

9. Self-adjusting brakes. No periodic adjustments required.

10. Steel-belted radial tires. The steel belts make the tires stronger for greater resistance to road hazards and longer life. Steel-belted, radial tires are standard on all 1990 Dodge cars.

11. Hydraulic valve lifters in all engines are quiet operating and do not require adjustments.

12. Materials more durable. Steel bodyside sills, door panels, quarter panels and many other body panels on North American-built Dodges are galvanized, galvannealed, treated with Zincrometal or zinc-plated for protection against corrosion. Expanded use of fiberglass, plastics, and special paints and primers also contribute to longer service life. All car bodies are also treated in Dodge's 8-step dip-and-spray baths for extra protection. Stainless steel exhaust system and a stainless steel radiator cap have the ability to resist corrosion and last for years.

13. Multi-groove alternator and water pump drive belt on all domestic 4-cylinder engines reduce the need for periodic belt tensioning and provide extended belt life.

14. Camshaft drive belt cover on the 2.2-liter and 2.5-liter 4-cylinder engines are designed for efficient, improved sealing against road dust and splash, as well as for easy removal and reinstallation.

15. Fusible links, which protect the electrical system should overloads occur, have been relocated to the left front shock absorber tower on all models for easier accessibility.

16. Wiring and vacuum lines are carefully routed through the engine compartment to eliminate diagnostic confusion for mechanics and to promote easier servicing.

17. Advanced design seals for optional air conditioning systems are less susceptible to leaks and offer longer service life than the O-ring seals used previously. Steel and/or aluminum nitrile rubber-coated gaskets are used in place of O-rings to prevent leakage of refrigerant gas or liquid.

18. Single serpantine belt system to drive all engine accessories. It includes an automatic tensioning mechanism which eliminates belt adjustment and provides much longer belt life. This feature is only on the new 3.3 V-6 and Mitsubishi-built 3.0-liter V-6.

Where replacement parts are required, Dodge recommends that only genuine MOPAR parts are used to ensure best service results.

Deposition of Francois J. Castaing
14 June 2011

Exhibit Twelve

In the matter of :

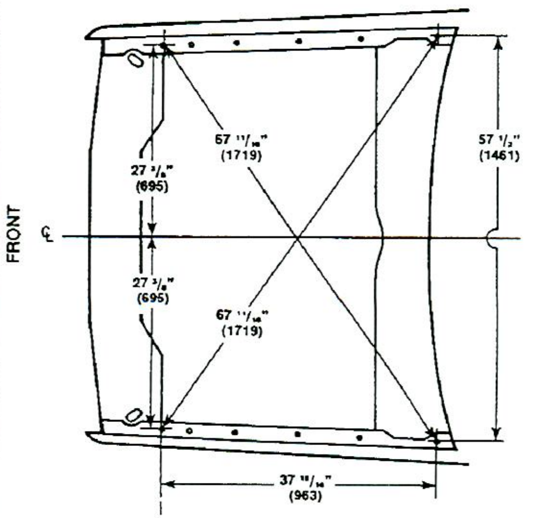
KLINE versus VICTORIA MORGAN-ALCALA, CARLOS ALCALA, NATALIE RAWLS, DAIMLERCHRYSLER CORPORATION (AKA CHRYSLER CORPORATION) LOMAN AUTO GROUP, CHRYSLER GROUP LLC, et al.

1996 JEEP GRAND CHEROKEE 2WD/4WD

105 $^{15}/_{16}$" (2691mm) WHEELBASE

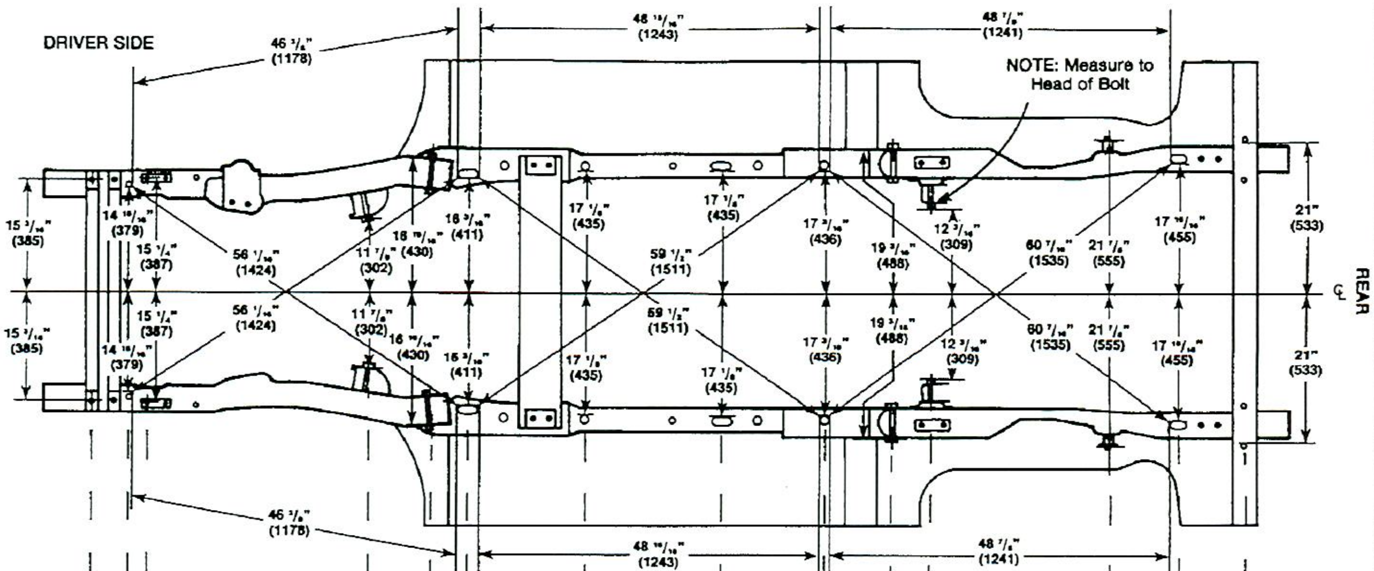
UNDERHOOD VIEW

UNDERHOOD VIEW POINT-TO-POINT DIMENSIONS ARE TAKEN WITH TRAM BAR POINTERS SET AT EQUAL LENGTHS.
Bolts and Studs are Measured to Center.
Holes are Measured to Closest Edge.



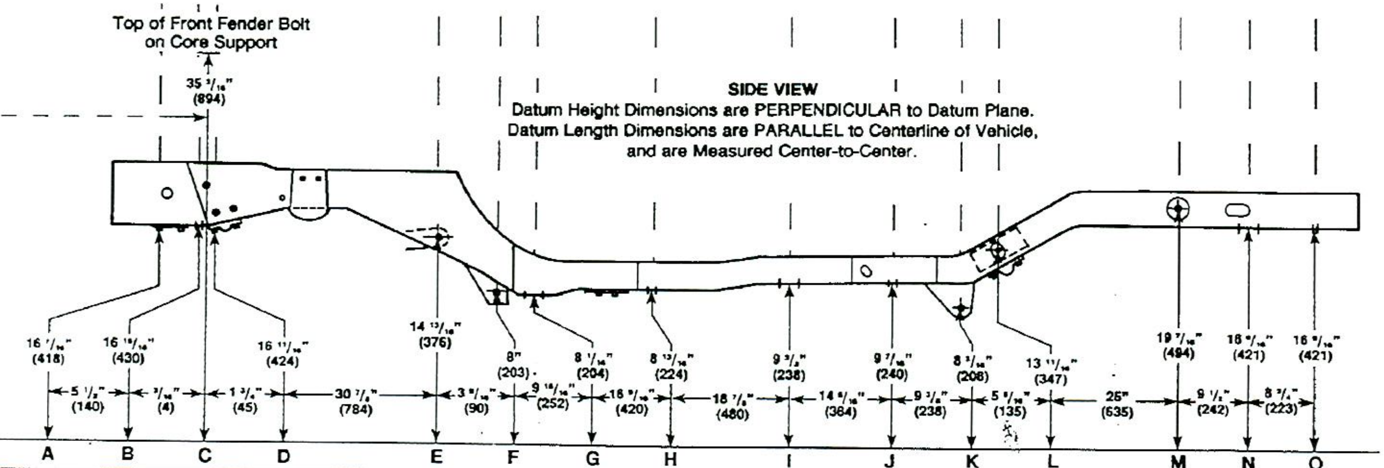
BOTTOM VIEW

BOTTOM VIEW POINT-TO-POINT DIMENSIONS ARE TAKEN WITH TRAM BAR POINTERS SET AT EQUAL LENGTHS.
Bolts and Studs are Measured to Center. Holes are Measured to Closest Edge.



SIDE VIEW

Datum Height Dimensions are PERPENDICULAR to Datum Plane.
Datum Length Dimensions are PARALLEL to Centerline of Vehicle, and are Measured Center-to-Center.



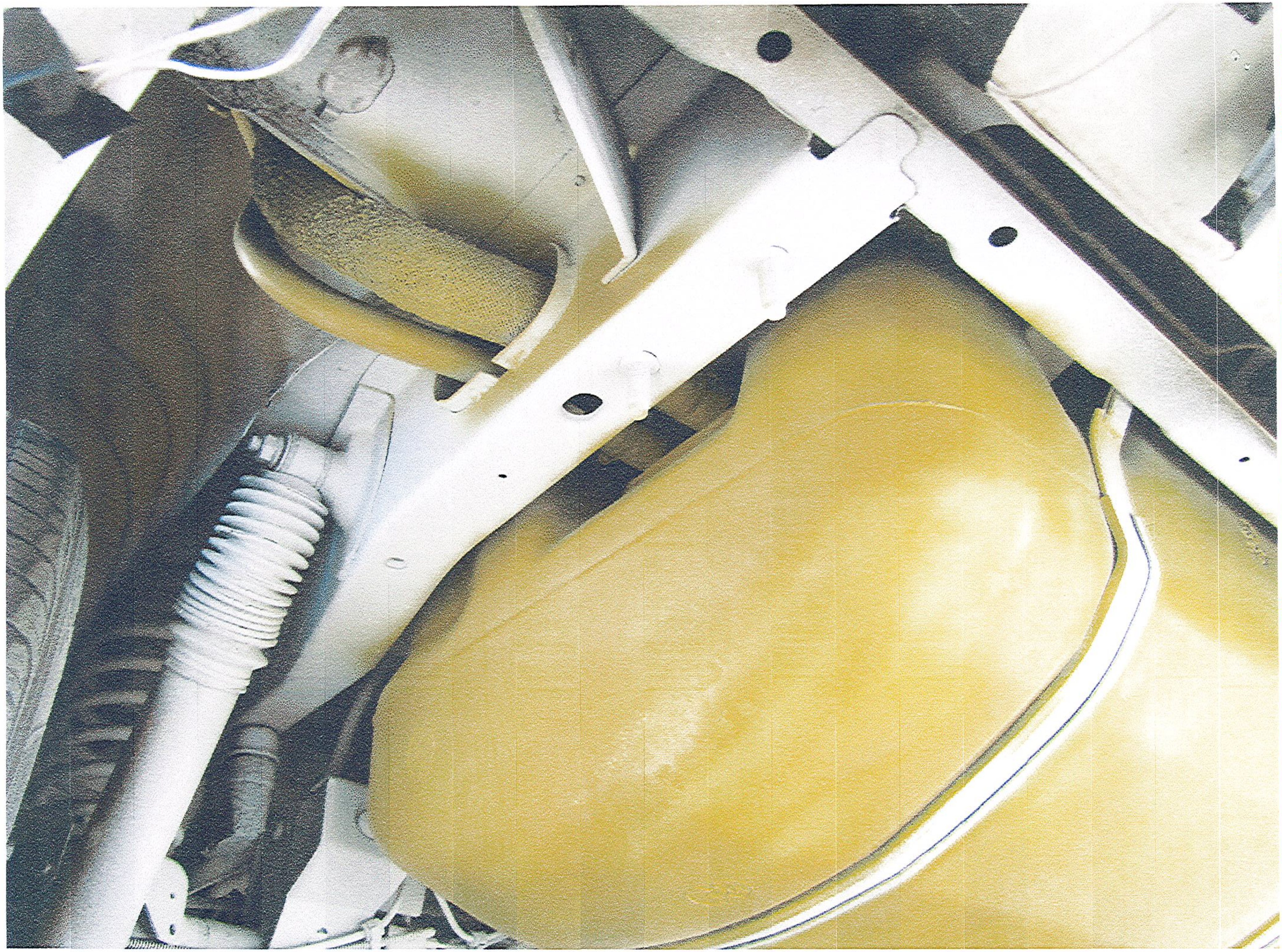
MEASURING POINTS

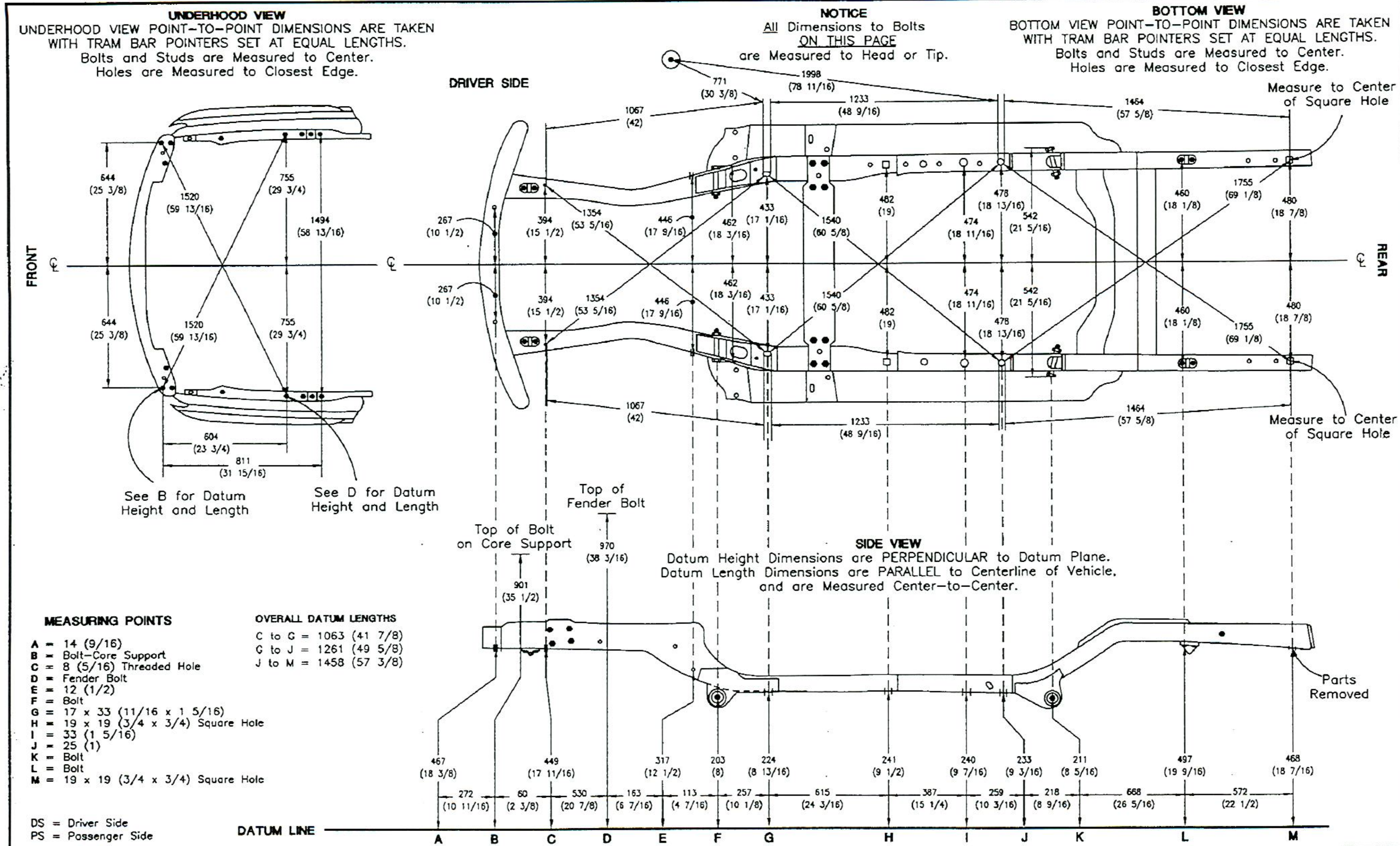
- A — Bolt
- B — 9/16" (14) - Threaded Hole
- C — Front Fender Bolt
- D — Bolt
- E — Bolt
- F — Bolt
- G — 3/4" x 1" (19 x 25)
- H — 3/4" (19)
- I — 3/4" x 1" (19 x 25)
- J — 3/4" (19)
- K — Bolt
- L — Bolt
- M — Bolt
- N — 3/4" x 1" (19 x 25)
- O — 1/2" (13)

OVERALL DATUM LENGTHS
B to G — 46 1/4" (1175mm)
G to J — 49 3/4" (1264mm)
J to N — 49 3/16" (1250mm)

JPT-2

SEE PROCEDURE EXPLANATION





MEASURING POINTS

- A = 14 (9/16)
- B = Bolt-Core Support
- C = 8 (5/16) Threaded Hole
- D = Fender Bolt
- E = 12 (1/2)
- F = Bolt
- G = 17 x 33 (11/16 x 1 5/16)
- H = 19 x 19 (3/4 x 3/4) Square Hole
- I = 33 (1 5/16)
- J = 25 (1)
- K = Bolt
- L = Bolt
- M = 19 x 19 (3/4 x 3/4) Square Hole

OVERALL DATUM LENGTHS

- C to G = 1063 (41 7/8)
- G to J = 1261 (49 5/8)
- J to M = 1458 (57 3/8)

DS = Driver Side
PS = Passenger Side

Deposition of Francois J. Castaing
14 June 2011

Exhibit Thirteen

In the matter of :

KLINE versus VICTORIA MORGAN-ALCALA, CARLOS ALCALA, NATALIE RAWLS, DAIMLERCHRYSLER CORPORATION (AKA CHRYSLER CORPORATION) LOMAN AUTO GROUP, CHRYSLER GROUP LLC, et al.

Δ π EXHIBIT 13
Deponent Castaing
Date 6-14-11 Rptr. Las
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14 June 2011

Exhibit Fourteen

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In 1981, the quality of American cars was just plain lousy. But this is 1991.

All of us...Ford, GM, Chrysler...built a lot of lousy cars in the early 1980s. And we paid the price. We lost a lot of our market to the import competition.

But that forced us to wake up and start building better cars and trucks.

So 120 billion dollars in new plants, new technology, new cars, new trucks, and millions in retraining have resulted in the biggest turnaround in the history of industrial America.

This isn't 1981. It's 1991. And the winner is the American car buyer.

What has been the change in quality since 1981?

The quality issue is rapidly becoming a non-issue. The huge gap that once existed between America and the Japanese is closing fast.

One American brand is now ahead of Honda in the same survey that has enthroned Honda quality. And the other American brands are catching up fast.

But what about Chrysler?

What's happened to Chrysler quality?

One way quality is measured is by the number of things that stay right with your car.

Response Analysis Corporation of Princeton asked new car owners if they had any problems with 89 different items. According to the RAC report, an average of 87 items were no problem in Honda Accord. And 85.9 items were no problem in our Dodge Spirit and Plymouth Acclaim.*

Only a small statistical difference in things that stay right. And who doesn't want things to stay right?

Highest Customer Satisfaction ranking of all American manufacturers. Can it be done without quality?

Not if it's based on product quality and dealer service. And that's exactly the

*Survey sample size: 200 per vehicle. †J.D. Power and Associates 1987-1990 Customer Satisfaction with Product Quality and Dealer Service℠ 1986-1989 passenger cars. **J.D. Power and Associates 1991 Light Duty Truck Customer Satisfaction with Product Quality and Dealer Service℠ Study based on a total of 10,458 responses. ††C.A.R. Inc. 1991 Early Buyer Study. Imperial classification: Large Luxury segment. ***C.A.R. Inc. 1991 Early Buyer Study. Fifth Avenue classification: Basic Large segment. †††Excludes vehicles built for Chrysler: Imports, Laser, Talon, Monaco, Summit.

basis of the J.D. Power and Associates survey.

It ranks Chrysler the highest of the Big Three car companies for the fourth year in a row!

Chrysler Town & Country is ranked the highest in customer satisfaction of any minivans, import or domestic.**

And Dodge full-size vans are ranked highest in customer satisfaction of all full-size vans.**

We know how to achieve customer satisfaction. With quality.

One way to improve quality is to make your best the best.

Chrysler Imperial has the highest quality rating of any car in its class. Higher than Cadillac Sedan DeVille. Higher than Lincoln Town Car. That's based on a survey of owners done by the Consumer Attitude Research Company.††

The same research reported the New Yorker Fifth Avenue has the highest quality of workmanship rating of any car in its class.**

Our best is indeed the best.

The real issue for the '90s is not quality, but safety. Yours.

We believe quality will be a non-issue in the '90s. It will be comparable. The real issue for the 1990s will be safety.

And we have a head start.

Chrysler is the only company to put drivers' air bags in every car it builds in the U.S.††† And we have the only driver's minivan air bag. To be fully effective, the air bag must be used with a seat belt. But it will add a level of safety the customer should not be asked to live without.

Honda says they will have air bags in all their cars for the 1994 model year. Toyota and Nissan say 1993. GM says 1995. We say the sooner the better.

Chrysler has more vehicles with standard anti-lock brakes than Honda, Toyota and Nissan together.

And by the way, Chrysler offers more models with 4-wheel drive and all-wheel drive than Honda, Toyota and Nissan combined.

We sincerely hope everybody will make safety their first priority for the '90s. The industry has dragged its feet long enough.

We believe a car engineered for safety is a car engineered for quality.

And for the ultimate benefit of the consumer.

Lee Iacocca

Advantage: Chrysler.

CHRYSLER · PLYMOUTH · DODGE · DODGE TRUCKS · JEEP · EAGLE

Deposition of Francois J. Castaing
14 June 2011

Exhibit Fifteen

In the matter of :

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Safety should be our first priority. The auto industry has dragged its feet long enough.

Δ π EXHIBIT 15
Deponent Castaing
Date 10-14-11 Rptr. [illegible]
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We aren't crusaders. We're car builders. But we've discovered something wonderful. Drivers' air bags save lives. The letters we get from people whose lives have been saved by a Chrysler air bag are enough to make a grown man cry.

So one million air bags later, we know we're on the right track.

We want to provide a level of safety that is not always available today in the average car and truck. We know that a vehicle engineered for safety will add value the customer should not be asked to live without.

But we have a head start.

Chrysler is the only car company with a driver's side air bag standard on every car we build in the U.S.* Honda says they will have them in all their cars in 1994. Toyota and Nissan say 1993. GM announced they will have drivers' air bags in all their cars in 1995.

Meanwhile, everybody puts them on the most expensive cars. But not the lowest priced. And we wonder why. There's no such thing as a poor man's air bag.

Chrysler has more models of cars and trucks combined with standard anti-lock brakes than Honda, Toyota and Nissan together. The anti-lock brake system is one of the best things ever to go into a car.

And by the way, Chrysler offers more models with 4-wheel drive than Honda, Toyota and Nissan combined.

Every car company has its priorities. None is more important to us than safety.

How about an air bag for a minivan?

For 1991 Dodge Caravan and Plymouth Voyager have a lower, more aero front end. An instrument panel redesigned for easier readability. Rear shoulder harnesses for passengers in the outboard seats. Available all-wheel drive for better traction and anti-lock brakes for surer stops.

But we get letters asking, "Where is our air bag?"

So this January we introduced the first available minivan air bag. The minivan driver's air bag must be used with the seat belt to be fully effective. The two together will provide the level of safety we're talking about.

Is any safety feature insignificant?

Consider the safety options we make available! A visor phone you can talk into without taking your hands off the wheel. A remote keyless entry system when it's dark and scary. An electrochromatic rear-view mirror that dims automatically to reduce glare. Speed-sensitive locks that lock themselves. Heated outside power mirrors to get rid of freezeover. Wiper air foils to keep your windshield clear, even in a downpour. And how about bumpers that exceed government regulations.

We want you to know how important our safety features are. Before you have to use them.

Is a quality car a safe car?

In the early eighties, the American car industry made a mockery of "made in America." And we paid the price. A big price.

But this is 1991. And 120 billion dollars later, our industry has forged the biggest turnaround in the history of industrial America. The technology, the factories, the cars and trucks, the training have all been jump-started practically from scratch.

The result: one American brand is now ahead of Honda in the same survey that has enthroned Honda quality. The rest are close behind. The distance we have traveled is impressive. The distance we have to go is miniscule. And we will go the distance.

But is a quality car automatically a safe car? Not unless there is a commitment to the engineering features that will provide the level of safety all carmakers should strive to achieve. We believe a car engineered for safety is a car engineered for quality.

And for the ultimate benefit of the consumer.

Do we have to sacrifice customer care?

For the last 10 years, Chrysler has provided the customer with the longest powertrain warrantie in the business.** We still do.

For the last four years, a J.D. Power and Associates survey has shown Chrysler attained the highest customer satisfaction ranking of any American car manufacturer!† based on the quality of our products as well as the quality of our dealer service.

We will not sacrifice our products. Our dealers will not sacrifice service. We can't afford to.

Safety: a commitment for the 90's and beyond.

Whether stated publicly or implied, every car company has made a commitment to quality. Or satisfaction. Or both. And we're all doing everything we can to make good on that promise. If we didn't, the customer would put us out of business in a hurry.

But the Chrysler commitment goes beyond quality or service, the price of admission to the market. It goes directly to a growing concern in America: safety on the road.

We share that concern. And we show it. In the way we engineer safety, feature after feature, into the cars and trucks we build.

It's our hope that the rest of the industry will do the same. And do it soon.

Lee Iacocca

Deposition of Francois J. Castaing
14 June 2011

Exhibit Sixteen

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Δ π EXHIBIT 16

Deponent Castaing

Date 6-14-11 Rptr. [illegible]

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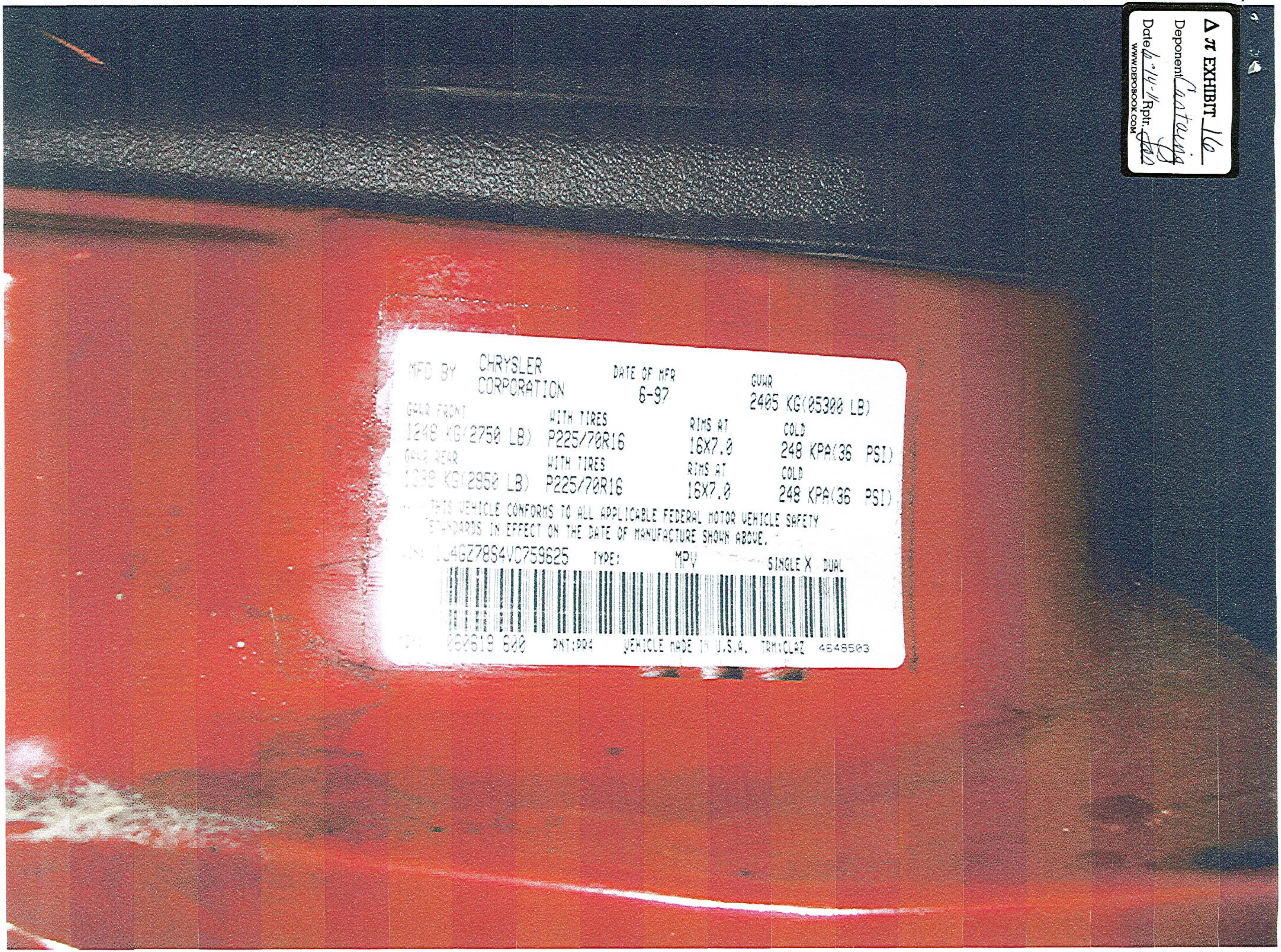

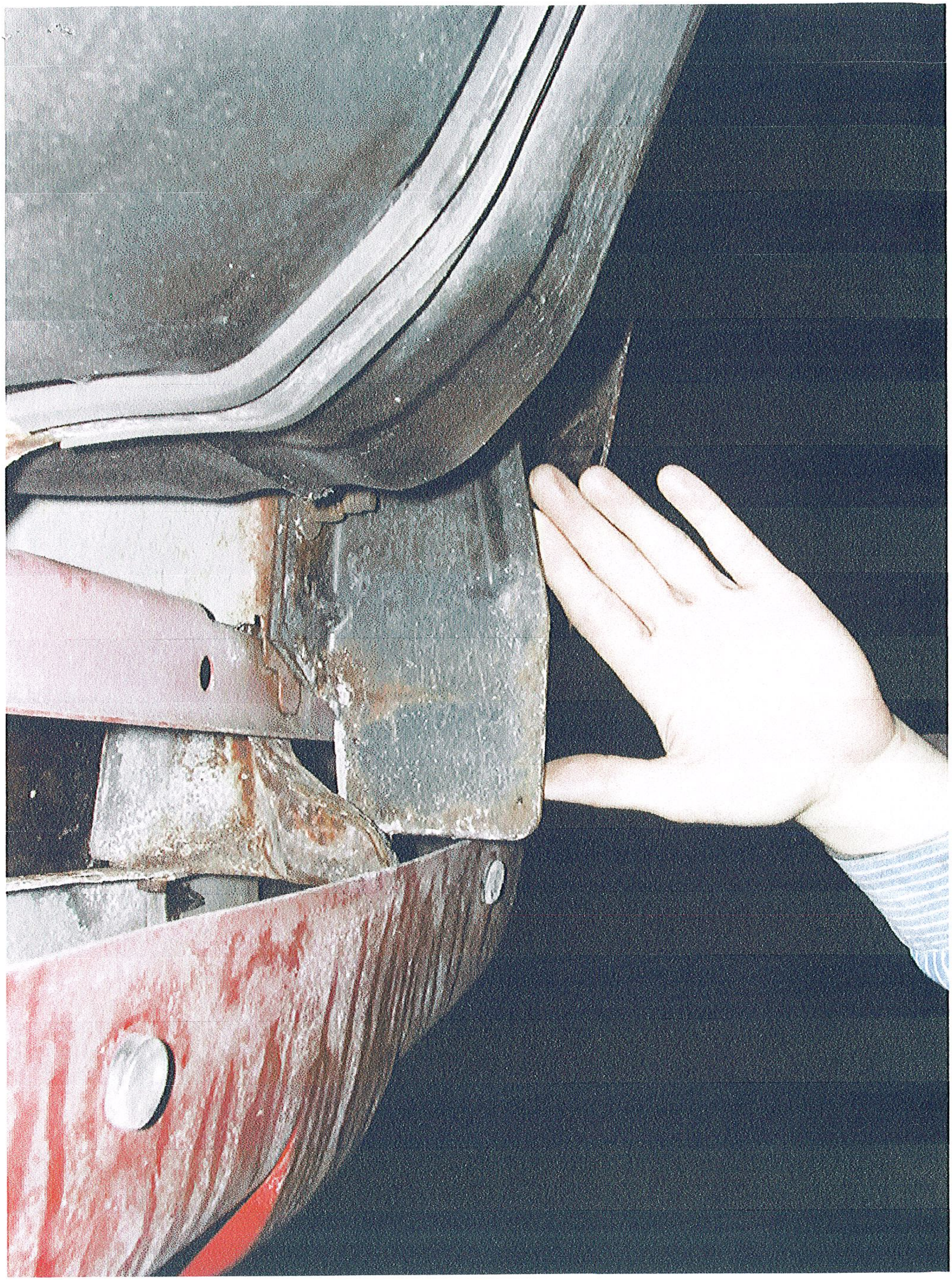

Deposition of Francois J. Castaing
14 June 2011

Exhibit Seventeen

In the matter of :

KLINE versus VICTORIA MORGAN-ALCALA, CARLOS ALCALA, NATALIE RAWLS, DAIMLERCHRYSLER CORPORATION (AKA CHRYSLER CORPORATION) LOMAN AUTO GROUP, CHRYSLER GROUP LLC, et al.

Δ π EXHIBIT 17
Deponent Castaing
Date 6-14-11 Rptr. [illegible]
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HOT TEST
RUN TUE. 7/26

ITEM NO. ZJ8771 PAGE

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

NO INST.
FUEL PUMP
RUNNING.

ITEM ZJ8771 CHARGE NO. 532003 ISSUE DATE 7/23/94

VC5208 30 MPH REAR MOVING BARR, ZJJ74, 4.0L MPI
1995 MVSS 301 VALIDATION - FUEL SYSTEM INTEGRITY.

TEST DATE	__/__/__	ENGINEER	Weigel
	SPEED ____ MPH	SOURCE	____

TEST PURPOSE — PRIMARY, 1995 MVSS 301 VALIDATION
OBSERVE AND DETERMINE FUEL SYSTEM INTEGRITY.

IMPACT TYPE
TARGET SPEED; 30.2 MPH
DAMAGE LOCATION; REAR
IMPACT TYPE; BARRIER
BARRIER SURFACE; PLYWOOD
DIRECTION; 0 DEGREES

VEHICLE
BODY CLASS; ZJ
CAR LINE; J
BODY; 74
ENGINE; 4.0 LITRE
ENGINE NOTE; MPI
TRANSMISSION; 5 SPEED MANUAL 4X4
TRANS. NOTE;
VIN AS TESTED; 1J4GZ58S5SC500013 MOD.
VIN AS BUILT; 1J4GZ58S5SC500013 MOD.

BUILD CONDITION
1995 C1 PILOT - PRODUCTION BUILT. (P5ZJ-8771)
4.0L I6, MANUAL TRANSMISSION, 4X4
CLOTH SEATS, FULL CONSOLE, ROOF RACK, A/C,
REAR FLIPPER GLASS.
CO-EXTRUDED FUEL TANK WITH IN-TANK ELECTRIC
FUEL PUMP. (KAUTEX)
P225/75R15 TIRES ON ALUMINUM WHEELS,
INSIDE MOUNT FULL SIZE SPARE.
23 GALLON PLASTIC TANK CAPACITY.

TARGET WEIGHT (LBS) 4202 TOTAL, 2344 FRONT, 1858 REAR, REP MAX OPT WT.
NOT INCLUDING OCCUPANTS OR LUGGAGE BALLAST.

TEST WEIGHT (LBS) ____ TOTAL, ____ FRONT, ____ REAR

FUEL BALLAST 21.8 GALLONS OF STODDARD SOLVENT.

LUGGAGE BALLAST 300 LBS OF LUGGAGE BALLAST SECURED IN CARGO AREA.

POST TEST REMARKS ________

Estes EXHIBIT NO. 11
5-27-05
M. MOORE

DC 04401

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

OTHER BALLAST

OCCUPANTS
LEFT FRONT HYB II, UNINSTRUMENTED. AD NO
RESTRAINT-UNIBELT.
RIGHT FRONT HYB II, UNINSTRUMENTED. AD NO
RESTRAINT-UNIBELT.

MECHANICAL REQ
MEASURE VEHICLE ATTITUDE AS RECEIVED AND WHEN LOADED FOR TEST, ADJUST ACCORDINGLY.
PAINT REAR STRUCTURE AND TANK FOR VISIBILITY.
FUEL PUMP TO BE RUNNING.
PRESSURE CHECK PRE-TEST, ROLL POST TEST.

NOTE: VEHICLE HAS NEW TANK WITHOUT GAS.
VEHICLE HAS BEEN PRESSURE CHECKED AT JTE BUT NO STODDARD WAS INSTALLED.

INSTRUMENTATION REQ
ELECTRIC FUEL PUMP TO BE RUNNING DURING TEST.

PHOTOGRAPHIC REQ
1-LEFT SIDE OVERALL CAMERA TO VIEW ENTIRE VEHICLE AT IMPACT.
1-RIGHT SIDE OVERALL CAMERA TO VIEW ENTIRE VEHICLE AT IMPACT.
1-CATWALK CAMERA TO VIEW ENTIRE VEHICLE.
1-PIT CAMERA-OVERALL VIEW OF REAR STRUCTURE.
1-PIT CAMERA-CLOSE-UP OF FUEL TANK AND AXLE.
1-PIT CAMERA-CLOSE-UP OF TRACK BAR BRACKET ON AXLE.
1-PIT CAMERA CLOSE-UP OF REAR BUMPER TO F/TANK.

FILM ANALYSIS
VEHICLE VELOCITY, ONLY IF REQUESTED.
DYNAMIC CRUSH.

REMARKS
TEST REQUEST ORIGINATOR: ED ZYLIK TL 733-2074.
VEHICLE TO BE STORED IN BONEYARD POST TEST.
MAKE ONE (1) COPY OF FOILM, SEND TO:
E.A. ZYLIK 514-15-58

T. E. REPORT
MVSS 301 REPORT REQUIRED.

REPORT CODES

A = TRANSDUCER DATA	B = ALL FILM DATA
C = HIGH SPEED FILM	D = ENGINEER'S REPORT
E = DUMMY KINEMATICS	F = STEERING COLUMN
G = UNDERBODY	H = A-POST
I = DYNAMIC CRUSH	J = ENGINE COMPARTMENT
K = DOOR CRUSH	L = FORCE/CRUSH/ENERGY
M = SPECIAL	

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

DISTRIBUTION	W.A. BREITMOSER, JR.	422-05-01	(AB)
	E.A. ZYLIK	514-15-58	(AB)
	D.T. MCKENZIE	422-05-01	(AB)

SAFETY TEST
VEHICLE CRASH TEST LETTER

VC05208 30 MPH REAR MOVING BARR, ZJJ74, 4.0L MPI ITEM ZJ8771
1995 MVSS 301 VALIDATION - FUEL SYSTEM INTEGRITY.
TEST DATE 07/26/94

TEST PURPOSE	PRIMARY, 1995 MVSS 301 VALIDATION. OBSERVE AND DETERMINE FUEL SYSTEM INTEGRITY.		
IMPACT TYPE	TARGET SPEED;	30.2 MPH	
	DAMAGE LOCATION;	REAR	
	IMPACT TYPE;	BARRIER	
	BARRIER SURFACE;	PLYWOOD	
	DIRECTION;	0 DEGREES	
VEHICLE	BODY CLASS;	ZJ	
	CAR LINE;	J	
	BODY;	74	
	ENGINE;	4.0 LITRE	
	ENGINE NOTE;	MPI	
	TRANSMISSION;	5 SPEED MANUAL 4X4	
	TRANS. NOTE;		
	VIN AS TESTED;	1J4GZ58S5SC500013	MOD.
	VIN AS BUILT;	1J4GZ58S5SC500013	MOD.
TEST SPEED	30.4 MPH BY ELECTRONIC TRAP TIMER.		
TEST WEIGHT (LBS)	4849 TOTAL, 2596 FRONT, 2243 REAR.		
OCCUPANTS	LEFT FRONT HYB II, UNINSTRUMENTED. RESTRAINT-UNIBELT.		AD-60
	RIGHT FRONT HYB II, UNINSTRUMENTED. RESTRAINT-UNIBELT.		AD-55
BUILD CONDITION	1995 C1 PILOT - PRODUCTION BUILT. (P5ZJ-8771) 4.0L I6, MANUAL TRANSMISSION, 4X4 CLOTH SEATS, FULL CONSOLE, ROOF RACK, A/C, REAR FLIPPER GLASS. CO-EXTRUDED FUEL TANK WITH IN-TANK ELECTRIC FUEL PUMP. (KAUTEX) P225/75R15 TIRES ON ALUMINUM WHEELS, INSIDE MOUNT FULL SIZE SPARE. 23 GALLON PLASTIC TANK CAPACITY.		
TARGET WEIGHT (LBS)	4202 TOTAL, 2344 FRONT, 1858 REAR, REP MAX OPT WT. NOT INCLUDING OCCUPANTS OR LUGGAGE BALLAST.		

DC 04404

VEHICLE CRASH TEST LETTER

VC05208 30 MPH REAR MOVING BARR, ZJJ74, 4.0L MPI ITEM ZJ8771
1995 MVSS 301 VALIDATION - FUEL SYSTEM INTEGRITY.
TEST DATE 07/26/94

FUEL AND BALLAST	21.8 GALLONS OF STODDARD SOLVENT. 300 LBS OF LUGGAGE BALLAST SECURED IN CARGO AREA. 100 LBS SECURED TO LT FT TLOOR PAN. 200 LBS SECURED TO RT FT FLOOR PAN. 248 LBS SECURED TO REAR FLOOR PAN.
POST TEST REMARKS	THERE WAS NO FUEL LEAKAGE DURING IMPACT, NOR DURING THE SUBSEQUENT THIRTY MINUTES. THERE WAS FUEL LEAKAGE DURING THE STATIC ROLL IN EXCESS OF THE FEDERAL STANDARD.

REPORT CODES	A = TRANSDUCER DATA	B = ALL FILM DATA
	C = HIGH SPEED FILM	D = ENGINEER'S REPORT
	E = DUMMY KINEMATICS	F = STEERING COLUMN
	G = UNDERBODY	H = A-POST
	I = DYNAMIC CRUSH	J = ENGINE COMPARTMENT
	K = DOOR CRUSH	L = FORCE/CRUSH/ENERGY
	M = SPECIAL	

DISTRIBUTION	W.A. BREITMOSER, JR.	422-05-01	(AB)
	E.A. ZYLIK	514-15-58	(AB)
	D.T. MCKENZIE	422-05-01	(AB)

DATE 07/27/94 TIME 14.56.57.

INTER COMPANY CORRESPONDENCE

FILE DCR072694 DATE 08/03/94

TO
DISTRIBUTION

FROM
B. D. CARLISLE

DEPARTMENT	PLANT/OFFICE	CIMS NUMBER
5320	CHRYSLER CENTER	481-02-18

SUBJECT:
REAR DYNAMIC CRUSH ANALYSIS
VC05208 30 MPH REAR MOVING BARR. ZJJ74. 4.0L MPI ITEM ZJ8771
1995 MVSS 301 VALIDATION - FUEL SYSTEM INTEGRITY.
TEST DATE 07/26/94

TEST PURPOSE	PRIMARY. 1995 MVSS 301 VALIDATION. OBSERVE AND DETERMINE FUEL SYSTEM INTEGRITY.
IMPACT TYPE	TARGET SPEED: 30.2 MPH DAMAGE LOCATION: REAR IMPACT TYPE: BARRIER BARRIER SURFACE: PLYWOOD DIRECTION: 0 DEGREES
VEHICLE	BODY CLASS: ZJ CAR LINE: J BODY: 74 ENGINE: 4.0 LITRE ENGINE NOTE: MPI TRANSMISSION: 5 SPEED MANUAL 4X4 TRANS. NOTE: VIN AS TESTED: 1J4GZ58S5SC500013 MOD. VIN AS BUILT: 1J4GZ58S5SC500013 MOD.
TEST SPEED	30.4 MPH BY ELECTRONIC TRAP TIMER.
TEST WEIGHT (LBS)	4849 TOTAL. 2596 FRONT. 2243 REAR.
OCCUPANTS	LEFT FRONT HYB II. UNINSTRUMENTED. AD-60 RESTRAINT-UNIBELT. RIGHT FRONT HYB II. UNINSTRUMENTED. AD-53 RESTRAINT-UNIBELT.
BUILD CONDITION	1995 C1 PILOT - PRODUCTION BUILT. (P5ZJ-8771) 4.0L I6. MANUAL TRANSMISSION. 4X4 CLOTH SEATS. FULL CONSOLE. ROOF RACK. A/C. REAR FLIPPER GLASS. CO-EXTRUDED FUEL TANK WITH IN-TANK ELECTRIC FUEL PUMP. (KAUTEX) P225/75R15 TIRES ON ALUMINUM WHEELS. INSIDE MOUNT FULL SIZE SPARE. 23 GALLON PLASTIC TANK CAPACITY.
TARGET WEIGHT (LBS)	4202 TOTAL. 2344 FRONT. 1858 REAR. REP MAX OPT WT. NOT INCLUDING OCCUPANTS OR LUGGAGE BALLAST.

FUEL AND BALLAST	21.8 GALLONS OF STODDARD SOLVENT. 300 LBS OF LUGGAGE BALLAST SECURED IN CARGO AREA. 100 LBS SECURED TO LT FT TLOOR PAN. 200 LBS SECURED TO RT FT FLOOR PAN. 248 LBS SECURED TO REAR FLOOR PAN.
POST TEST REMARKS	THERE WAS NO FUEL LEAKAGE DURING IMPACT. NOR DURING THE SUBSEQUENT THIRTY MINUTES. THERE WAS FUEL LEAKAGE DURING THE STATIC ROLL IN EXCESS OF THE FEDERAL STANDARD.

DYNAMIC CRUSH, PITCH, AND REAR WHEEL MOTION RELATIVE TO THE FRONT SILL HAVE BEEN DETERMINED BY FILM ANALYSIS. TIME WAS BASED ON CAMERA TIMING DATA.

DYNAMIC CRUSH 19 +OR- 1 INCH AT 74. +OR- 5 MSEC.

S.A. Helquist
S. A. HELQUIST

Bryan D. Carlisle
B. D. CARLISLE

GRAPHS - 4

Deposition of Francois J. Castaing
14 June 2011

Exhibit Eighteen

In the matter of :

KLINE versus VICTORIA MORGAN-ALCALA, CARLOS ALCALA, NATALIE RAWLS, DAIMLERCHRYSLER CORPORATION (AKA CHRYSLER CORPORATION) LOMAN AUTO GROUP, CHRYSLER GROUP LLC, et al.

SAFETY TEST
VEHICLE CRASH TEST LETTER

VC05380 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI ITEM ZJ8602
1996 MVSS VALIDATION - 301.
TEST DATE 02/15/95

TEST PURPOSE	PRIMARY, 1996 USA 301 VALIDATION. OBSERVE FUEL SYSTEM INTEGRITY.
IMPACT TYPE	TARGET SPEED; 30.1 MPH DAMAGE LOCATION; REAR BARRIER TYPE; REAR TYPE IV BARRIER SURFACE; PLYWOOD
VEHICLE	BODY CLASS; ZJ CAR LINE; J BODY; 74 ENGINE; 5.2 LITRE ENGINE NOTE; ELECTRONIC FUEL INJECTION. TRANSMISSION; 4 SPEED AUTO 4X4 TRANS. NOTE; VIN AS TESTED; 1J4GZ7856TC522282 MOD. VIN AS BUILT; 1J4GZ7856PC522282 MOD. 1J4GZ7856PC522282
TEST SPEED	30.3 MPH BY ELECTRONIC TRAP TIMER
TEST WEIGHT (LBS)	4810 TOTAL, 2677 FRONT, 2133 REAR
OCCUPANTS	LEFT FRONT, HYB II, BALLAST. AD-60 RESTRAINT-BELTS ONLY. RIGHT FRONT, HYB II, BALLAST. AD-65 RESTRAINT-BELTS ONLY.
BUILD CONDITION	1993 PRODUCTION BUILT CANADIAN ZJ RETOFITTED AS A 1996 DOMESTIC ZJ FOR REAR IMPACT. 5.2L ENGINE, 4 SPEED AUTO TRANS, 4X4 POWER STEERING, A/C, ABS BRAKES, ROOF RACK P235/75R15 TIRES ON ALUMINUM WHEELS & FULL SPARE. 1996 CO-EXTRUDED FUEL TANK WITH REINFORCED SENDING UNIT COVER. 1996 STEEL FUEL RAILS AND MATCHING LINE BUNDLE. 1996 REAR LIFT GATE WITH FIXED GLASS 1996 REINFORCED BUMPER BAR, FASCIA & BRACKETS
TARGET WEIGHT (LBS)	4163 TOTAL, 2311 FRONT, 1852 REAR REP MAX OPT. WT. NOT INCLUDING OCCUPANTS OR LUGGAGE BALLAST.

SAFETY TEST
VEHICLE CRASH TEST LETTER

VC05380 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI ITEM ZJ8602
1996 MVSS VALIDATION - 301.
TEST DATE 02/15/95

FUEL AND BALLAST	21.8 GALLONS OF STODDARD SOLVENT. 300 LBS OF LUGGAGE BALLAST SECURED IN CARGO AREA. 200 LBS SECURED TO FRONT FOOTWELLS
POST TEST REMARKS	THERE WAS EXCESSIVE FUEL LEAKAGE DURING IMPACT AND THE SUBSEQUENT THIRTY MINUTES, RESULTING FROM PARTIAL SEPERATION OF THE VENT LINE FITTING FROM THE TANK.

REPORT CODES	A = TRANSDUCER DATA	B = ALL FILM DATA
	C = HIGH SPEED FILM	D = ENGINEER'S REPORT
	E = DUMMY KINEMATICS	F = STEERING COLUMN
	G = UNDERBODY	H = A-POST
	I = DYNAMIC CRUSH	J = ENGINE COMPARTMENT
	K = DOOR CRUSH	L = FORCE/CRUSH/ENERGY
	M = SPECIAL	N = CATALOG EDP DATA
	* = REPORT REQUESTOR	

DISTRIBUTION	W.A. BREITMOSER	422-05-01	(AB)
	D.J. MCKENZIE	422-05-01	(AB)
	J.B. ESTES	514-15-58	(AB)

DATE 02/16/95 TIME 08.38.02.

ITEM NO. ZJ8602 PAGE 01

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

SUPPLEMENT NO. 03

ITEM ZJ8602 CHARGE NO. MASTERCARD ISSUE DATE 01/10/95

VC 5380 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI
1996 MVSS VALIDATION - 301.

TEST DATE	2/15/95	ENGINEER	MANNEY
	SPEED 30.3 MPH	SOURCE	TRAP

TEST PURPOSE — PRIMARY, 1996 USA 301 VALIDATION.
OBSERVE FUEL SYSTEM INTEGRITY.

IMPACT TYPE
- TARGET SPEED; 30.1 MPH
- DAMAGE LOCATION; REAR
- BARRIER TYPE; REAR TYPE IV
- BARRIER SURFACE; PLYWOOD

VEHICLE
- BODY CLASS; ZJ
- CAR LINE; J
- BODY; 74
- ENGINE; 5.2 LITRE
- ENGINE NOTE; ELECTRONIC FUEL INJECTION
- TRANSMISSION; 4 SPEED AUTO 4x4
- TRANS. NOTE;
- VIN AS TESTED; 1J4GZ7856TC522282 MOD.
- VIN AS BUILT; 1J4GZ7856PC522282 MOD.

1J4GZ7856PC522282

BUILD CONDITION
1993 PRODUCTION BUILT CANADIAN ZJ RETOFITTED
AS A 1996 DOMESTIC ZJ FOR REAR IMPACT.
5.2L ENGINE, 4 SPEED AUTO TRANS, 4X4
POWER STEERING, A/C, ABS BRAKES, ROOF RACK
P235/75R15 TIRES ON ALUMINUM WHEELS & FULL SPARE.
1996 CO-EXTRUDED FUEL TANK WITH REINFORCED
SENDING UNIT COVER.
1996 STEEL FUEL RAILS AND MATCHING LINE BUNDLE.
1996 REAR LIFT GATE WITH FIXED GLASS
1996 REINFORCED BUMPER BAR, FASCIA & BRACKETS

TARGET WEIGHT (LBS) 4163 TOTAL, 2311 FRONT, 1852 REAR REP MAX OPT. WT.
NOT INCLUDING OCCUPANTS OR LUGGAGE BALLAST.

TEST WEIGHT (LBS) 4810 TOTAL, 2677 FRONT, 2133 REAR

FUEL BALLAST
21.8 GALLONS OF STODDARD SOLVENT.

LUGGAGE BALLAST 300 LBS OF LUGGAGE BALLAST SECURED IN CARGO AREA.

POST TEST REMARKS __________________

DC 04054

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

SUPPLEMENT NO. 03

OTHER BALLAST [illegible] lbs secured to front floor [illegible]

OCCUPANTS
LEFT FRONT, HYB II, BALLAST. AD NO 60
RESTRAINT-BELTS ONLY.
RIGHT FRONT, HYB II, BALLAST. AD NO 6[illegible]
RESTRAINT-BELTS ONLY.

MECHANICAL REQ
PLACE SEAT IN MID TRACK POSITION.
FUEL PUMP TO BE RUNNING DURING TEST.
RUN FUEL PUMP PRE TEST TO CHECK CONNECTIONS.
PRESSURE CHECK PRE AND POST TEST.
STATIC ROLL POST TEST.
PAINT REAR DIFFERENTIAL AND GAS TANK FOR VIEWING.

INSTRUMENTATION REQ
SEE 3RD SHEET NO. 107 FOR ACCELEROMETER REQUIREMENTS AND LOCATIONS (THE 4 SILL ACCELEROMETERS ARE TO BE BI-AXIAL).

PHOTOGRAPHIC REQ
1-LEFT SIDE OVERALL CAMERA TO VIEW ENTIRE VEHICLE.
1-RIGHT SIDE OVERALL CAMERA TO VIEW ENTIRE VEHICLE
1-CATWALK CAMERA TO VIEW ENTIRE VEHICLE.
1-PIT CAMERA TO VIEW UNDERBODY, AXLE TO BUMPER.

FILM ANALYSIS
VEHICLE VELOCITY, ONLY IF REQUESTED.
DYNAMIC CRUSH.

REMARKS
MAKE 1 FILM COPY AND 1 VHS COPY, SEND TO:
J.B. ESTES 514-15-58
PLEASE RETURN VEHICLE POST TEST TO JTE.

T. E. REPORT
301 FUEL SYSTEMS REPORT REQUIRED.

REPORT CODES

A = TRANSDUCER DATA	B = ALL FILM DATA
C = HIGH SPEED FILM	D = ENGINEER'S REPORT
E = DUMMY KINEMATICS	F = STEERING COLUMN
G = UNDERBODY	H = A-POST
I = DYNAMIC CRUSH	J = ENGINE COMPARTMENT
K = DOOR CRUSH	L = FORCE/CRUSH/ENERGY
M = SPECIAL	N = CATALOG EDP DATA
* = REPORT REQUESTOR	

DISTRIBUTION

W.A. BREITMOSER	422-05-01	(AB)
D.J. MCKENZIE	422-05-01	(AB)
J.B. ESTES	514-15-58	(AB)

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

SUPPLEMENT NO. 03

```
********************CHANGED 02/02/95 AT 10.00.08.    SUPPLEMENT NO. 01

BUILD CONDITION
          ADD       1996 STEEI FUEL RAILS AND MATCHING LINE BUNDLE.

TARGET WEIGHT (LBS)
          MODIFY
           TO READ 4163 TOTAL, 2311 FRONT, 1852 REAR REP MAX OPT. WT.

OCCUPANTS
          MODIFY   RESTRAINT-RESTRAINT-UNIBELT ONLY.
           TO READ RESTRAINT-BELTS ONLY.
          MODIFY   RESTRAINT-RESTRAINT-UNIBELT ONLY.
           TO READ RESTRAINT-BELTS ONLY.

********************CHANGED 02/02/95 AT 10.05.05.    SUPPLEMENT NO. 02

TARGET WEIGHT (LBS)
          ADD       NOT INCLUDING OCCUPANTS OR LUGGAGE BALLAST.

********************CHANGED 02/07/95 AT 13.42.32.    SUPPLEMENT NO. 03

INSTRUMENTATION REQ
          MODIFY
           TO READ SEE 3RD SHEET NO. 107 FOR ACCELEROMETER REQUIRE-
          ADD         MENTS AND LOCATIONS (THE 4 SILL ACCELEROMETERS
          ADD         ARE TO BE BI-AXIAL).
```

Deposition of Francois J. Castaing
14 June 2011

Exhibit Nineteen

In the matter of :

KLINE versus VICTORIA MORGAN-ALCALA, CARLOS ALCALA, NATALIE RAWLS, DAIMLERCHRYSLER CORPORATION (AKA CHRYSLER CORPORATION) LOMAN AUTO GROUP, CHRYSLER GROUP LLC, et al.

SAFETY TEST
VEHICLE CRASH TEST LETTER

VC05441 30 MPH REAR BARRIER, ZJJ74, 4.0L MPI ITEM ZJ8554
1996 MVSS VALIDATION - 301.
TEST DATE 04/12/95

TEST PURPOSE	PRIMARY, 1996 USA 301 VALIDATION. OBSERVE FUEL SYSTEM INTEGRITY.
IMPACT TYPE	TARGET SPEED; 30.1 MPH DAMAGE LOCATION; REAR BARRIER TYPE; REAR TYPE IV BARRIER SURFACE; PLYWOOD
VEHICLE	BODY CLASS; ZJ CAR LINE; J BODY; 74 ENGINE; 4.0 LITRE ENGINE NOTE; ELECTRONIC FUEL INJECTION TRANSMISSION; 4 SPEED AUTO 4x4 TRANS. NOTE; VIN AS TESTED; 1J4GZ58S?TC113147 MOD. VIN AS BUILT; 1J4GZ58S5RC113147 MOD.
TEST SPEED	30.1 MPH - TRAP TIMER
TEST WEIGHT (LBS)	4816 TOTAL, 2708 FRONT, 2108 REAR
OCCUPANTS	LEFT FRONT, HYB II, BALLAST. AD-63 RESTRAINT-BELTS ONLY. RIGHT FRONT, HYB II, BALLAST. AD-52 RESTRAINT-BELTS ONLY.
BUILD CONDITION	1994 PRODUCTION BUILT ZJ GRAND CHEROKEE MODIFIED TO REPRESENT 1996 PRODUCTION FOR REAR IMPACT. 4.0L ENGINE, 4 SPEED AUTO TRANS, 4X4 POWER STEERING, A/C, ABS BRAKES, ROOF RACK P215/75R15 TIRES WITH P225/75R15 SPARE TIRE. 1996 CO-EXTRUDED FUEL TANK WITH REINFORCED SENDING UNIT COVER. 1996 STEEL FUEL RAILS AND MATCHING LINE BUNDLE. 1996 REAR LIFT GATE WITH FIXED GLASS 1996 REINFORCED BUMPER BAR, FASCIA & BRACKETS
TARGET WEIGHT (LBS)	4163 TOTAL, 2311 FRONT, 1852 REAR REP MAX OPT. WT. NOT INCLUDING OCCUPANTS OR LUGGAGE BALLAST.

SAFETY TEST
VEHICLE CRASH TEST LETTER

VC05441 30 MPH REAR BARRIER, ZJJ74, 4.0L MPI ITEM ZJ8554
1996 MVSS VALIDATION - 301.
TEST DATE 04/12/95

FUEL AND BALLAST

21.8 GALLONS OF STODDARD SOLVENT.
100 LBS DRIVER FONT FLOOR PAN
100 LBS PASSENGER FRONT FLOOR PAN
100 LBS DRIVER REAR FLOOR PAN
100 LBS PASSENGER REAR FLOOR PAN
170 CARGO AREA
(570 TOTAL BALLAST ADDED)

POST TEST REMARKS

DURING POST TEST STATIC ROLL, EXCESSIVE FUEL LEAKAGE IN THE 90 TO 180 DEGREE ROLL PHASE.

REPORT CODES

A = TRANSDUCER DATA	B = ALL FILM DATA
C = HIGH SPEED FILM	D = ENGINEER'S REPORT
E = DUMMY KINEMATICS	F = STEERING COLUMN
G = UNDERBODY	H = A-POST
I = DYNAMIC CRUSH	J = ENGINE COMPARTMENT
K = DOOR CRUSH	L = FORCE/CRUSH/ENERGY
M = SPECIAL	N = CATALOG EDP DATA
* = REPORT REQUESTOR	

DISTRIBUTION

D.J. MCKENZIE	422-05-01	(AB)
J.B. ESTES	514-15-58	(AB)

DATE 04/18/95 TIME 08.12.40.

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

ITEM ZJ8554 CHARGE NO. 11111111 ISSUE DATE 03/10/95

VC5441 30 MPH REAR BARRIER, ZJJ74, 4.0L MPI.
1996 MVSS VALIDATION - 301.

TEST DATE 4 / 12 / 95 ENGINEER MARTIN
SPEED 30.1 MPH SOURCE TRAP

TEST PURPOSE PRIMARY, 1996 USA 301 VALIDATION.
OBSERVE FUEL SYSTEM INTEGRITY.

IMPACT TYPE
TARGET SPEED; 30.1 MPH
DAMAGE LOCATION; REAR
BARRIER TYPE; REAR TYPE IV
BARRIER SURFACE; PLYWOOD

VEHICLE
BODY CLASS; ZJ
CAR LINE; J
BODY; 74
ENGINE; 4.0 LITRE
ENGINE NOTE; ELECTRONIC FUEL INJECTION
TRANSMISSION; 4 SPEED AUTO 4x4
TRANS. NOTE;
VIN AS TESTED; 1J4GZ58S?TC113147 MOD.
VIN AS BUILT; 1J4GZ58S5RC113147 MOD.

BUILD CONDITION
1994 PRODUCTION BUILT ZJ GRAND CHEROKEE MODIFIED TO REPRESENT 1996 PRODUCTION FOR REAR IMPACT.
4.0L ENGINE, 4 SPEED AUTO TRANS, 4X4
POWER STEERING, A/C, ABS BRAKES, ROOF RACK
P215/75R15 TIRES WITH P225/75R15 SPARE TIRE.
1996 CO-EXTRUDED FUEL TANK WITH REINFORCED SENDING UNIT COVER.
1996 STEEL FUEL RAILS AND MATCHING LINE BUNDLE.
1996 REAR LIFT GATE WITH FIXED GLASS
1996 REINFORCED BUMPER BAR, FASCIA & BRACKETS

TARGET WEIGHT (LBS) 4163 TOTAL, 2311 FRONT, 1852 REAR REP MAX OPT. WT.
NOT INCLUDING OCCUPANTS OR LUGGAGE BALLAST.

TEST WEIGHT (LBS) ________ TOTAL, ________ FRONT, ________ REAR

FUEL BALLAST
21.8 GALLONS OF STODDARD SOLVENT.

LUGGAGE BALLAST 300 LBS OF LUGGAGE BALLAST SECURED IN CARGO AREA.

OTHER BALLAST ________________

POST TEST REMARKS ________________

DC 03418

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

OCCUPANTS	LEFT FRONT, HYB II, BALLAST. RESTRAINT-BELTS ONLY. RIGHT FRONT, HYB II, BALLAST. RESTRAINT-BELTS ONLY.	AD NO____ AD NO____
MECHANICAL REQ	PLACE SEAT IN MID TRACK POSITION. FUEL PUMP TO BE RUNNING DURING TEST. RUN FUEL PUMP PRE TEST TO CHECK CONNECTIONS. PRESSURE CHECK PRE AND POST TEST. STATIC ROLL POST TEST. PAINT REAR DIFFERENTIAL AND GAS TANK FOR VIEWING. PAINT FILLER NECK AREA FOR VISIBILITY.	
INSTRUMENTATION REQ	SEE 3RD SHEET NO. 107 FOR ACCELEROMETER REQUIREMENTS AND LOCATIONS (THE 4 SILL ACCELEROMETERS ARE TO BE BI-AXIAL).	
PHOTOGRAPHIC REQ	✓ 1-LEFT SIDE OVERALL CAMERA TO VIEW ENTIRE VEHICLE. 1-RIGHT SIDE OVERALL CAMERA TO VIEW ENTIRE VEHICLE ✓ 1-CATWALK CAMERA TO VIEW ENTIRE VEHICLE. 1-PIT CAMERA TO VIEW UNDERBODY, AXLE TO BUMPER. 1-PIT CAMERA CLOSE-UP OF FILLER NECK.	
FILM ANALYSIS	VEHICLE VELOCITY, ONLY IF REQUESTED. DYNAMIC CRUSH.	
REMARKS	MAKE 1 FILM COPY AND 1 VHS COPY, SEND TO: J.B. ESTES 514-15-58 PLEASE RETURN VEHICLE POST TEST TO JTE.	
T. E. REPORT	301 FUEL SYSTEMS REPORT REQUIRED.	

REPORT CODES

A = TRANSDUCER DATA	B = ALL FILM DATA
C = HIGH SPEED FILM	D = ENGINEER'S REPORT
E = DUMMY KINEMATICS	F = STEERING COLUMN
G = UNDERBODY	H = A-POST
I = DYNAMIC CRUSH	J = ENGINE COMPARTMENT
K = DOOR CRUSH	L = FORCE/CRUSH/ENERGY
M = SPECIAL	N = CATALOG EDP DATA
* = REPORT REQUESTOR	

DISTRIBUTION

D.J. MCKENZIE	422-05-01	(AB)
J.B. ESTES	514-15-58	(AB)

Deposition of Francois J. Castaing
14 June 2011

Exhibit Twenty

In the matter of :

KLINE versus VICTORIA MORGAN-ALCALA, CARLOS ALCALA, NATALIE RAWLS, DAIMLERCHRYSLER CORPORATION (AKA CHRYSLER CORPORATION) LOMAN AUTO GROUP, CHRYSLER GROUP LLC, et al.

SAFETY TEST
VEHICLE CRASH TEST LETTER

VC05681 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI ITEM ZJ8262R
1997 MVSS DEVELOPMENT - 301.
TEST DATE 11/04/95

TEST PURPOSE	PRIMARY, 1997 USA 301 DEVELOPMENT. OBSERVE FUEL SYSTEM INTEGRITY.
IMPACT TYPE	TARGET SPEED; 30.1 MPH DAMAGE LOCATION; REAR BARRIER TYPE; REAR TYPE IV BARRIER SURFACE; PLYWOOD
VEHICLE	BODY CLASS; ZJ CAR LINE; J BODY; 74 ENGINE; 5.2 LITRE ENGINE NOTE; ELECTRONIC FUEL INJECTION TRANSMISSION; 3 SPEED AUTO 4x4 TRANS. NOTE; VIN AS TESTED; 1J4EZ58YXTC146387 MOD. VIN AS BUILT; 1J4EZ58YXTC146387 MOD.
TEST SPEED	30.2 MPH BY ELECTRONIC TRAP.
TEST WEIGHT (LBS)	4796 TOTAL, 2855 FRONT, 1941 REAR
OCCUPANTS	LEFT FRONT, HYB II, BALLAST. AD-52 RESTRAINT-BELTS ONLY. RIGHT FRONT, HYB II, BALLAST. AD-53 RESTRAINT-BELTS ONLY.
BUILD CONDITION	1996 PRODUCTION ZJ MODIFIED TO REPRESENT 1997. AECM SENSOR SYSTEM PRODUCTION INTENT FOR 1997. 5.2 LITRE (V8) ENGINE, 3-SPEED AUTO TRANS. 4X4, POWER STEERING, ABS BRAKES, AIR CONDITIONING. 1997 AECM MODULE AND BRACKET BIW REINFORCEMENTS UNDER FLOORPAN FOR 1997 DESIGN INTENT. BUCKET SEAT (CLOTH) ON ELECTRIC TRACKS. FULL CENTER CONSOLE AND OVERHEAD CONSOLE. P225/75R15 TIRES WITH ALUMINUM WHEELS & FULL SPARE WITH MODIFIED ATTACHMENT BOLT. HEAVYWEIGHT VEHICLE TO TEST AECM. 1997 FUEL SENDING UNIT AND 1997 FUEL TANK DESIGN.
TARGET WEIGHT (LBS)	4166 TOTAL, 2311 FRONT, 1854 REAR, REP MAX OPT WT. NOT INCLUDING OCCUPANTS OR LUGGAGE BALLAST.

SAFETY TEST
VEHICLE CRASH TEST LETTER

VC05681 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI ITEM ZJ8262R
1997 MVSS DEVELOPMENT - 301.
TEST DATE 11/04/95

FUEL AND BALLAST	21.8 GALLONS OF STODDARD SOLVENT. 300 LBS OF LUGGAGE BALLAST SECURED IN CARGO AREA. (INCLUDES THE FOLLOWING: 100 LBS SECURED TO RR FLOORPAN. 100 LBS SECURED TO LR FLOORPAN. 115 LBS SECURED TO RF FLOORPAN.) 100 LBS SECURED TO FRONT HEADLIGHT AREA.
POST TEST REMARKS	FUEL LEAK AT IMPACT.

REPORT CODES	A = TRANSDUCER DATA	B = ALL FILM DATA
	C = HIGH SPEED FILM	D = ENGINEER'S REPORT
	E = DUMMY KINEMATICS	F = STEERING COLUMN
	G = UNDERBODY	H = A-POST
	I = DYNAMIC CRUSH	J = ENGINE COMPARTMENT
	K = DOOR CRUSH	L = FORCE/CRUSH/ENERGY
	M = SPECIAL	N = CATALOG EDP DATA
	* = REPORT REQUESTOR	
DISTRIBUTION	D.J. MCKENZIE	422-05-01 (AB)
	J.B. ESTES	514-15-58 (AB)

DATE 11/07/95 TIME 07.56.58.

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

SUPPLEMENT NO. 01

ITEM ZJ8262R CHARGE NO. DISCOVER ISSUE DATE 10/02/95

VC5681 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI.
1997 MVSS DEVELOPMENT - 301.

TEST DATE 11 / 4 / 95 ENGINEER Collings
SPEED 30.2 MPH SOURCE

TEST PURPOSE PRIMARY, 1997 USA 301 DEVELOPMENT.
OBSERVE FUEL SYSTEM INTEGRITY.

IMPACT TYPE	TARGET SPEED;	30.1 MPH
	DAMAGE LOCATION;	REAR
	BARRIER TYPE;	REAR TYPE IV
	BARRIER SURFACE;	PLYWOOD
VEHICLE	BODY CLASS;	ZJ
	CAR LINE;	J
	BODY;	74
	ENGINE;	5.2 LITRE
	ENGINE NOTE;	ELECTRONIC FUEL INJECTION
	TRANSMISSION;	3 SPEED AUTO 4x4
	TRANS. NOTE;	
	VIN AS TESTED;	1J4EZ58YXTC146387 MOD.
	VIN AS BUILT;	1J4EZ58YXTC146387 MOD.

BUILD CONDITION
1996 PRODUCTION ZJ MODIFIED TO REPRESENT 1997.
AECM SENSOR SYSTEM PRODUCTION INTENT FOR 1997.
5.2 LITRE (V8) ENGINE, 3-SPEED AUTO TRANS. 4X4, POWER STEERING, ABS BRAKES, AIR CONDITIONING.
1997 AECM MODULE AND BRACKET BIW REINFORCEMENTS UNDER FLOORPAN FOR 1997 DESIGN INTENT.
BUCKET SEAT (CLOTH) ON ELECTRIC TRACKS.
FULL CENTER CONSOLE AND OVERHEAD CONSOLE.
P225/75R15 TIRES WITH ALUMINUM WHEELS & FULL SPARE WITH MODIFIED ATTACHMENT BOLT.
HEAVYWEIGHT VEHICLE TO TEST AECM.
1997 FUEL SENDING UNIT AND 1997 FUEL TANK DESIGN.

TARGET WEIGHT (LBS) 4166 TOTAL, 2311 FRONT, 1854 REAR, REP MAX OPT WT. NOT INCLUDING OCCUPANTS OR LUGGAGE BALLAST.

TEST WEIGHT (LBS) 4196 TOTAL, [illegible] FRONT, 1711 REAR

FUEL BALLAST 21.8 GALLONS OF STODDARD SOLVENT.

LUGGAGE BALLAST 300 LBS OF LUGGAGE BALLAST SECURED IN CARGO AREA.

POST TEST REMARKS ______

ITEM NO. ZJ8262R PAGE 02

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

SUPPLEMENT NO. 01

OTHER BALLAST: 100 lbs of ballast secured to RF floorpan, 50 lbs of ballast secured to LR floorpan, 115 lbs of [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

OCCUPANTS: LEFT FRONT, HYB II, BALLAST. AD NO 52
RESTRAINT-BELTS ONLY.
RIGHT FRONT, HYB II, BALLAST. AD NO 53
RESTRAINT-BELTS ONLY.

MECHANICAL REQ: PLACE SEAT IN MID TRACK POSITION.
FUEL PUMP TO BE RUNNING DURING TEST.
RUN FUEL PUMP PRE TEST TO CHECK CONNECTIONS.
PRESSURE CHECK PRE AND POST TEST.
STATIC ROLL POST TEST.
PAINT REAR DIFFERENTIAL AND GAS TANK FOR VIEWING.
PAINT FILLER NECK AREA FOR VISIBILITY.

INSTRUMENTATION REQ: SEE 3RD SHEET NO. 107 FOR ACCELEROMETER REQUIREMENTS AND LOCATIONS (THE 4 SILL ACCELEROMETERS ARE TO BE BI-AXIAL).
TRI-AXIAL ACCELEROMETER ON AECM BRACKET.
MONITOR AECM SAFING, SQUIB AND INT. ACC. OUTPUTS.
BI-AXIS ACC. AT FRONT ROLOMITE LOCATIONS. (X&Z)
INSURE AIRBAGS DO NOT FIRE.

PHOTOGRAPHIC REQ:
1-LEFT SIDE OVERALL CAMERA TO VIEW ENTIRE VEHICLE.
1-RIGHT SIDE OVERALL CAMERA TO VIEW ENTIRE VEHICLE
1-CATWALK CAMERA TO VIEW ENTIRE VEHICLE.
1-PIT CAMERA TO VIEW UNDERBODY, AXLE TO BUMPER.
1-PIT CAMERA CLOSE-UP OF FILLER NECK.

FILM ANALYSIS: VEHICLE VELOCITY, ONLY IF REQUESTED.
DYNAMIC CRUSH.

REMARKS: MAKE 1 FILM COPY AND 1 VHS COPY, SEND TO:
J.B. ESTES 514-15-58
PLEASE RETURN VEHICLE POST TEST TO JTE.

T. E. REPORT: 301 FUEL SYSTEMS REPORT REQUIRED.

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

SUPPLEMENT NO. 01

REPORT CODES	A = TRANSDUCER DATA	B = ALL FILM DATA
	C = HIGH SPEED FILM	D = ENGINEER'S REPORT
	E = DUMMY KINEMATICS	F = STEERING COLUMN
	G = UNDERBODY	H = A-POST
	I = DYNAMIC CRUSH	J = ENGINE COMPARTMENT
	K = DOOR CRUSH	L = FORCE/CRUSH/ENERGY
	M = SPECIAL	N = CATALOG EDP DATA
	* = REPORT REQUESTOR	
DISTRIBUTION	D.J. MCKENZIE	422-05-01 (AB)
	J.B. ESTES	514-15-58 (AB)

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

SUPPLEMENT NO. 01

*******************CHANGED 10/20/95 AT 13.49.09. SUPPLEMENT NO. 01

VEHICLE

MODIFY	VIN AS TESTED;	XXX	MOD.
TO READ	VIN AS TESTED;	1J4EZ58YXTC146387	MOD.
MODIFY	VIN AS BUILT;	XXX	MOD.
TO READ	VIN AS BUILT;	1J4EZ58YXTC146387	MOD.

Deposition of Francois J. Castaing
14 June 2011

Exhibit Twenty-One

In the matter of :

KLINE versus VICTORIA MORGAN-ALCALA, CARLOS ALCALA, NATALIE RAWLS, DAIMLERCHRYSLER CORPORATION (AKA CHRYSLER CORPORATION) LOMAN AUTO GROUP, CHRYSLER GROUP LLC, et al.

Δ π EXHIBIT 21
Deponent Castaing
Date 6-14-11 Rptr. Sao
WWW.DEPOBOOK.COM

SAFETY TEST
VEHICLE CRASH TEST LETTER

VC05789 30 MPH REAR BARRIER, ZJJ74, 4.0L MPI ITEM ZJ8370
1997 MVSS DEVELOPMENT - 301.
TEST DATE 01/18/96

TEST PURPOSE	PRIMARY, 1997 USA 301 DEVELOPMENT. OBSERVE FUEL SYSTEM INTEGRITY.
IMPACT TYPE	TARGET SPEED; 30.1 MPH DAMAGE LOCATION; REAR BARRIER TYPE; REAR TYPE IV BARRIER SURFACE; PLYWOOD
VEHICLE	BODY CLASS; ZJ CAR LINE; J BODY; 74 ENGINE; 4.0 LITRE ENGINE NOTE; ELECTRONIC FUEL INJECTION TRANSMISSION; 4 SPEED AUTO 4x4 TRANS. NOTE; SELECT-TRAC VIN AS TESTED; 1J4EZ78?6TC100062 MOD. VIN AS BUILT; 1J4EZ78S6TC100062 MOD.
TEST SPEED	30.0 MPH BY ELECTRONIC TRAP.
TEST WEIGHT (LBS)	4828 TOTAL, 2710 FRONT, 2118 REAR
OCCUPANTS	LEFT FRONT, HYB II, BALLAST. AD-65 RESTRAINT-BELTS ONLY. RIGHT FRONT, HYB II, BALLAST. AD-67 RESTRAINT-BELTS ONLY.
BUILD CONDITION	1996 PRODUCTION ZJ MODIFIED TO REPRESENT 1997. 4.0 LITRE (I6) ENGINE, 4 SPEED AUTO TRANS. 4X4, POWER STEERING, ABS BRAKES, AIR CONDITIONING. HEATED LEATHER SEATS ON ELECTRIC TRACKS. FULL CENTER CONSOLE AND OVERHEAD CONSOLE. P225/70 R16 TIRES ON ALUMINUM RIMS & FULL SIZE SPARE. 1997 FUEL SENDING UNIT AND 1997 FUEL TANK DESIGN
TARGET WEIGHT (LBS)	4185 TOTAL, 2336 FRONT, 1849 REAR, REP MAX OPT WT. NOT INCLUDING OCCUPANTS OR LUGGAGE BALLAST.
FUEL AND BALLAST	21.5 GALLONS OF STODDARD SOLVENT. 300 LBS OF LUGGAGE BALLAST SECURED IN REAR SEATING AREA. 50 LBS OF BALLAST SECURED TO REAR SEATING AREA.

Estes
EXHIBIT NO. 16
5-27-05
M. MOORE

SAFETY TEST
VEHICLE CRASH TEST LETTER

VC05789 30 MPH REAR BARRIER, ZJJ74, 4.0L MPI ITEM ZJ8370
1997 MVSS DEVELOPMENT - 301.
TEST DATE 01/18/96

POST TEST REMARKS THERE WERE NO FUEL LEAKS AT IMPACT OR IN THE 25 MINUTES AFTER THE IMPACT. THERE WAS FUEL LEAKAGE IN EXCESS OF THE ALLOWABLE LIMITS IN THE ENGINE COMPARTMENT AREA DURING POST TEST STATIC ROLLOVER.

REPORT CODES

A = TRANSDUCER DATA	B = ALL FILM DATA
C = HIGH SPEED FILM	D = ENGINEER'S REPORT
E = DUMMY KINEMATICS	F = STEERING COLUMN
G = UNDERBODY	H = A-POST
I = DYNAMIC CRUSH	J = ENGINE COMPARTMENT
K = DOOR CRUSH	L = FORCE/CRUSH/ENERGY
M = SPECIAL	N = CATALOG EDP DATA
* = REPORT REQUESTOR	

DISTRIBUTION

D.J. MCKENZIE	422-05-01	(AB)
J.B. ESTES	514-15-58	(AB)

DATE 01/22/96 TIME 14.39.46.

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

SUPPLEMENT NO. 01

ITEM ZJ8370 CHARGE NO. DOUREADME? ISSUE DATE 1/8/96

VC5789 30 MPH REAR BARRIER, ZJJ74, 4.0L MPI.
1997 MVSS DEVELOPMENT - 301.

TEST DATE 1 / 12 / 96 ENGINEER Collings
SPEED 30.0 MPH SOURCE [illegible]

TEST PURPOSE PRIMARY. 1997 USA 301 DEVELOPMENT.
OBSERVE FUEL SYSTEM INTEGRITY.

IMPACT TYPE
TARGET SPEED; 30.1 MPH
DAMAGE LOCATION; REAR
BARRIER TYPE; REAR TYPE IV
BARRIER SURFACE; PLYWOOD

VEHICLE
BODY CLASS; ZJ
CAR LINE; J
BODY; 74
ENGINE; 4.0 LITRE
ENGINE NOTE; ELECTRONIC FUEL INJECTION
TRANSMISSION; 4 SPEED AUTO 4x4
TRANS. NOTE; quadra-trac
VIN AS TESTED; 1J4EZ78?6TC100062 MOD.
VIN AS BUILT; 1J4EZ78S6TC100062 MOD.

BUILD CONDITION
1996 PRODUCTION ZJ MODIFIED TO REPRESENT 1997.
4.0 LITRE (I6) ENGINE, 4 SPEED AUTO TRANS. 4X4,
POWER STEERING, ABS BRAKES, AIR CONDITIONING.
HEATED LEATHER SEATS ON ELECTRIC TRACKS.
FULL CENTER CONSOLE AND OVERHEAD CONSOLE.
P225/70 R16 TIRES ON ALUMINUM RIMS & FULL SIZE SPARE.
1997 FUEL SENDING UNIT AND 1997 FUEL TANK DESIGN.

TARGET WEIGHT (LBS) 4185 TOTAL, 2336 FRONT, 1849 REAR. REP MAX OPT WT.
NOT INCLUDING OCCUPANTS OR LUGGAGE BALLAST.

TEST WEIGHT (LBS) 4228 TOTAL, 2010 FRONT, 2118 REAR

FUEL BALLAST 21.5 GALLONS OF STODDARD SOLVENT.

LUGGAGE BALLAST 300 LBS OF LUGGAGE BALLAST SECURED IN CARGO AREA.

OTHER BALLAST [illegible]

POST TEST REMARKS

DC 01998

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

SUPPLEMENT NO. 01

OCCUPANTS	LEFT FRONT, HYB II, BALLAST. AD NO 55 RESTRAINT-BELTS ONLY. RIGHT FRONT, HYB II, BALLAST. AD NO 67 RESTRAINT-BELTS ONLY.
MECHANICAL REQ	PLACE SEAT IN MID TRACK POSITION. FUEL PUMP TO BE RUNNING DURING TEST. RUN FUEL PUMP PRE TEST TO CHECK CONNECTIONS. PRESSURE CHECK PRE AND POST TEST. STATIC ROLL POST TEST. PAINT REAR DIFFERENTIAL AND GAS TANK FOR VIEWING. PAINT FILLER NECK AREA FOR VISIBILITY.
INSTRUMENTATION REQ	SEE 3RD SHEET NO. 107 FOR ACCELEROMETER REQUIREMENTS AND LOCATIONS (THE 4 SILL ACCELEROMETERS ARE TO BE BI-AXIAL). TRI-AXIAL ON ASDM BRACKET. MONITOR ASDM SAFING,SQUIB AND IN. ACC. OUTPUTS. BI-AXIS ACC. AT FRONT ROLOMITE LOCATIONS. (X&Z) INSURE AIRBAGS DO NOT FIRE.
PHOTOGRAPHIC REQ	1-LEFT SIDE OVERALL CAMERA TO VIEW ENTIRE VEHICLE. 1-RIGHT SIDE OVERALL CAMERA TO VIEW ENTIRE VEHICLE 1-CATWALK CAMERA TO VIEW ENTIRE VEHICLE. 1-PIT CAMERA TO VIEW UNDERBODY, AXLE TO BUMPER. 1-PIT CAMERA CLOSE UP OF TRACK BAR BRACKET. PRE AND POST TEST PHOTOS OVERALL AND UNDERBODY ON 8 X 10 PAPER IN COLOR.
FILM ANALYSIS	VEHICLE VELOCITY, ONLY IF REQUESTED. DYNAMIC CRUSH.
REMARKS	MAKE 1 FILM COPY AND 1 VHS COPY, SEND TO: J.B. ESTES 514-15-58 PLEASE RETURN VEHICLE POST TEST TO JTE.
T. E. REPORT	301 FUEL SYSTEMS REPORT REQUIRED.
REPORT CODES	A = TRANSDUCER DATA B = ALL FILM DATA C = HIGH SPEED FILM D = ENGINEER'S REPORT E = DUMMY KINEMATICS F = STEERING COLUMN G = UNDERBODY H = A-POST I = DYNAMIC CRUSH J = ENGINE COMPARTMENT K = DOOR CRUSH L = FORCE/CRUSH/ENERGY M = SPECIAL N = CATALOG EDP DATA * = REPORT REQUESTOR

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

SUPPLEMENT NO. 01

ISTRIBUTION	D.J. MCKENZIE	422-05-01	(AB)
	J.B. ESTES	514-15-58	(AB)

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

SUPPLEMENT NO. 01

*******************CHANGED 01/09/96 AT 12.52.20. SUPPLEMENT NO. 01

VEHICLE

MODIFY	VIN AS TESTED;	1J4EZ78?1TC100096	MOD.
TO READ	VIN AS TESTED;	1J4EZ78?6TC100062	MOD.
MODIFY	VIN AS BUILT;	1J4EZ78S1TC100096	MOD.
TO READ	VIN AS BUILT;	1J4EZ78S6TC100062	MOD.

Deposition of Francois J. Castaing
14 June 2011

Exhibit Twenty-Two

In the matter of :

KLINE versus VICTORIA MORGAN-ALCALA, CARLOS ALCALA, NATALIE RAWLS, DAIMLERCHRYSLER CORPORATION (AKA CHRYSLER CORPORATION) LOMAN AUTO GROUP, CHRYSLER GROUP LLC, et al.

SAFETY TEST
VEHICLE CRASH TEST LETTER

VC05854 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI ITEM ZJ8209R
1997 MVSS DEVELOPMENT - 301.
TEST DATE 03/23/96

TEST PURPOSE	PRIMARY, 1997 USA 301 DEVELOPMENT. OBSERVE FUEL SYSTEM INTEGRITY.	
IMPACT TYPE	TARGET SPEED; 30.1 MPH DAMAGE LOCATION; REAR BARRIER TYPE; REAR TYPE IV BARRIER SURFACE; PLYWOOD	
VEHICLE	BODY CLASS; ZJ CAR LINE; J BODY; 74 ENGINE; 5.2 LITRE ENGINE NOTE; ELECTRONIC FUEL INJECTION TRANSMISSION; 4 SPEED AUTO 4x4 TRANS. NOTE; VIN AS TESTED; 1J4EZ78Y5?C126642 VIN AS BUILT; 1J4EZ78Y5TC126642	 MOD. MOD.
TEST SPEED	30.3 MPH BY ELECTRONIC TRAP.	
TEST WEIGHT (LBS)	4859 TOTAL, 2799 FRONT, 2060 REAR	
OCCUPANTS	LEFT FRONT, HYB II, BALLAST. RESTRAINT-BELTS ONLY. RIGHT FRONT, HYB II, BALLAST. RESTRAINT-BELTS ONLY.	AD-63 AD-67
BUILD CONDITION	1996 PRODUCTION ZJ MODIFIED TO REPRESENT 1997. 5.2 LITRE (V8) ENGINE, 4 SPEED AUTO TRANS, 4X4, POWER STEERING, ABS BRAKES, AIR CONDITIONING. FULL CENTER CONSOLE AND OVERHEAD CONSOLE. P225/70 R16 TIRES ON ALUMINUM RIMS & FULL SIZE SPARE. 1997 FUEL SENDING UNIT AND 1997 FUEL TANK DESIGN.	
TARGET WEIGHT (LBS)	4185 TOTAL, 2336 FRONT, 1849 REAR, REP MAX OPT WT. NOT INCLUDING OCCUPANTS OR LUGGAGE BALLAST.	
FUEL AND BALLAST	21.5 GALLONS OF STODDARD SOLVENT. 300 LBS OF LUGGAGE BALLAST SECURED IN CARGO AREA. NO ADDITIONAL BALLAST.	
POST TEST REMARKS	FUEL LEAKAGE AT IMPACT EXCEEDED ALOWABLE LIMITS.	

SAFETY TEST
VEHICLE CRASH TEST LETTER

VC05854 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI ITEM ZJ8209R
1997 MVSS DEVELOPMENT - 301.
TEST DATE 03/23/96

REPORT CODES

A = TRANSDUCER DATA	B = ALL FILM DATA
C = HIGH SPEED FILM	D = ENGINEER'S REPORT
E = DUMMY KINEMATICS	F = STEERING COLUMN
G = UNDERBODY	H = A-POST
I = DYNAMIC CRUSH	J = ENGINE COMPARTMENT
K = DOOR CRUSH	L = FORCE/CRUSH/ENERGY
M = SPECIAL	N = CATALOG EDP DATA
* = REPORT REQUESTOR	

DISTRIBUTION

D.J. MCKENZIE	422-05-01	(AB)
J.B. ESTES	514-15-58	(AB)

DATE 03/25/96 TIME 07.44.30.

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

SUPPLEMENT NO. 06

ITEM ZJ8209R CHARGE NO. MASTERCARD ISSUE DATE 03/13/96

VC 5854 30 MPH REAR BARRIER, ZJJ74, 5.2L MPI.
1997 MVSS DEVELOPMENT - 301.

TEST DATE 3/23/96 ENGINEER Collings
SPEED 30.3 MPH SOURCE TAP

TEST PURPOSE PRIMARY, 1997 USA 301 DEVELOPMENT.
OBSERVE FUEL SYSTEM INTEGRITY.

IMPACT TYPE
TARGET SPEED; 30.1 MPH
DAMAGE LOCATION; REAR
BARRIER TYPE; REAR TYPE IV
BARRIER SURFACE; PLYWOOD

VEHICLE
BODY CLASS; ZJ
CAR LINE; J
BODY; 74
ENGINE; 5.2 LITRE
ENGINE NOTE; ELECTRONIC FUEL INJECTION
TRANSMISSION; 4 SPEED AUTO 4x4
TRANS. NOTE;
VIN AS TESTED; 1J4EZ78Y5?C126642 MOD.
VIN AS BUILT; 1J4EZ78Y5TC126642 MOD.

BUILD CONDITION
1996 PRODUCTION ZJ MODIFIED TO REPRESENT 1997.
5.2 LITRE (V8) ENGINE, 4 SPEED AUTO TRANS, 4X4,
POWER STEERING, ABS BRAKES, AIR CONDITIONING.
FULL CENTER CONSOLE AND OVERHEAD CONSOLE.
P225/70 R16 TIRES ON ALUMINUM RIMS & FULL SIZE SPARE.
1997 FUEL SENDING UNIT AND 1997 FUEL TANK DESIGN.

TARGET WEIGHT (LBS) 4185 TOTAL, 2336 FRONT, 1849 REAR, REP MAX OPT WT.
NOT INCLUDING OCCUPANTS OR LUGGAGE BALLAST.

TEST WEIGHT (LBS) 4859 TOTAL, 2799 FRONT, 2060 REAR

FUEL BALLAST 21.5 GALLONS OF STODDARD SOLVENT.

LUGGAGE BALLAST 300 LBS OF LUGGAGE BALLAST SECURED IN CARGO AREA.

OTHER BALLAST No Added ballast.

POST TEST REMARKS

DC 04443

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

SUPPLEMENT NO. 06

OCCUPANTS	LEFT FRONT, HYB II, BALLAST. RESTRAINT-BELTS ONLY. RIGHT FRONT, HYB II, BALLAST. RESTRAINT-BELTS ONLY.	AD NO 63 AD NO 61
MECHANICAL REQ	PLACE SEAT IN MID TRACK POSITION. FUEL PUMP TO BE RUNNING DURING TEST. RUN FUEL PUMP PRE TEST TO CHECK CONNECTIONS. PRESSURE CHECK PRE AND POST TEST. STATIC ROLL POST TEST. ADD INCH TAPE DOWN ENTIRE LENGTH OF PROP SHAFT. PAINT REAR DIFFERENTIAL AND GAS TANK FOR VIEWING. PAINT TANK AND TARGET AS PER 3RD SHEET 106. PAINT FILLER NECK AREA FOR VISIBILITY.	
INSTRUMENTATION REQ	SEE 3RD SHEET NO. 106 FOR ACCELEROMETER REQUIREMENTS AND LOCATIONS (THE 4 SILL ACCELEROMETERS ARE TO BE BI-AXIAL). TRIAXIAL ON AECM BRACKET. 4 PACK ACCELEROMETERS ON THE REAR AXLE, L & R PLACEMENT OF PACKS IS MARKED ON AXLES. 4 PACK ACCELEROMETERS ON THE REAR SPRING SEAT, L&R INSURE AIRBAGS DO NOT FIRE. ADD Y AXIS ACCELEROMTERS AT FOUR(4) LOCATIONS AS MARKED IN THE VEHICLE. 3 ON B-PILLAR AND 1 ON THE FLOOR BEHIND THE DRIVER SEAT.	
PHOTOGRAPHIC REQ	1-LEFT SIDE OVERALL CAMERA TO VIEW ENTIRE VEHICLE. 1-RIGHT SIDE OVERALL CAMERA TO VIEW ENTIRE VEHICLE 1-CATWALK CAMERA TO VIEW ENTIRE VEHICLE. 2-PIT CAMERAS FOR ANALYSIS OF REAR UNDERBODY. 1-PIT CAMERA CLOSE UP OF TRACK BAR BRACKET. PRE AND POST TEST PHOTOS OVERALL AND UNDERBODY ON 8 X 10 PAPER IN COLOR. 1-VELOCITY CAMERA	
FILM ANALYSIS	VEHICLE VELOCITY, ONLY IF REQUESTED. DYNAMIC CRUSH.	
REMARKS	MAKE 1 FILM COPY AND 1 VHS COPY, SEND TO: J.B. ESTES 514-15-58 PLEASE RETURN VEHICLE POST TEST TO JTE. ATTENTION PAM MORTON @ 733-8727	
. E. REPORT	301 FUEL SYSTEMS REPORT REQUIRED.	

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

SUPPLEMENT NO. 06

REPORT CODES

A = TRANSDUCER DATA	B = ALL FILM DATA
C = HIGH SPEED FILM	D = ENGINEER'S REPORT
E = DUMMY KINEMATICS	F = STEERING COLUMN
G = UNDERBODY	H = A-POST
I = DYNAMIC CRUSH	J = ENGINE COMPARTMENT
K = DOOR CRUSH	L = FORCE/CRUSH/ENERGY
M = SPECIAL	N = CATALOG EDP DATA
* = REPORT REQUESTOR	

DISTRIBUTION

D.J. MCKENZIE	422-05-01	(AB)
J.B. ESTES	514-15-58	(AB)

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

SUPPLEMENT NO. 06

********************CHANGED 03/18/96 AT 12.30.31. SUPPLEMENT NO. 01

INSTRUMENTATION REQ
MODIFY KONITOR AECM SAFING, SQUIB AND INT. ACC OUTPUTS.
TO READ 9 AXIS ACCELEROMETER PACKS ON THE REAR AXLE, L & R
ADD PLACEMENT OF PACKS IS MARKED ON AXLES.
ADD TRIAXIAL ACCELEROMETERS ON THE REAR SPRING SEATS
ADD LEFT AND RIGHT. ON TOP OF SPRING MOUNT BRACKET.

********************CHANGED 03/18/96 AT 12.34.30. SUPPLEMENT NO. 02

VEHICLE
MODIFY VIN AS TESTED; 1J4EZ788Y6?C126642 MOD.
TO READ VIN AS TESTED; 1J4EZ78Y6?C126642 MOD.

MECHANICAL REQ
ADD ADD INCH TAPE DOWN ENTIRE LENGTH OF PROP SHAFT.

REMARKS
ADD ATTENTION PAM MORTON @ 733-8727

********************CHANGED 03/18/96 AT 12.49.24. SUPPLEMENT NO. 03

PHOTOGRAPHIC REQ
MODIFY 1-PIT CAMERA TO VIEW UNDERBODY, AXLE TO BUMPER.
TO READ 2-PIT CAMERAS FOR ANALYSIS OF REAR UNDERBODY.
ADD 1-VELOCITY CAMERA

********************CHANGED 03/20/96 AT 10.41.52. SUPPLEMENT NO. 04

INSTRUMENTATION REQ
MODIFY 9 AXIS ACCELEROMETER PACKS ON THE REAR AXLE, L & R
TO READ 4 PACK ACCELEROMETERS ON THE REAR AXLE, L & R
MODIFY TRIAXIAL ACCELEROMETERS ON THE REAR SPRING SEATS
TO READ 4 PACK ACCELEROMETERS ON THE REAR SPRING SEAT, L&R
DELETE LEFT AND RIGHT. ON TOP OF SPRING MOUNT BRACKET.

********************CHANGED 03/22/96 AT 14.00.13. SUPPLEMENT NO. 05

VEHICLE
MODIFY VIN AS TESTED; 1J4EZ78Y6?C126642 MOD.
TO READ VIN AS TESTED; 1J4EZ78Y5?C16642 MOD.

********************CHANGED 03/22/96 AT 14.15.04. SUPPLEMENT NO. 06

CHRYSLER MOTORS
SAFETY TEST
VEHICLE CRASH TEST REQUEST

SUPPLEMENT NO. 06

VEHICLE

MODIFY	VIN AS TESTED;	1J4EZ78Y5?C16642	MOD.
TO READ	VIN AS TESTED;	1J4EZ78Y5?C126642	MOD.

Deposition of Francois J. Castaing
14 June 2011

END OF DOCUMENT

In the matter of :

KLINE versus VICTORIA MORGAN-ALCALA, CARLOS ALCALA, NATALIE RAWLS, DAIMLERCHRYSLER CORPORATION (AKA CHRYSLER CORPORATION) LOMAN AUTO GROUP, CHRYSLER GROUP LLC, et al.