

EA02-025

FORD 10/27/03

APPENDIX N

BOOK 34 OF 61

PART 3 OF 6

1 A. This test may be regarded as one of the
2 most rigorous. This test is run at elevated
3 temperature (135 C fluid), elevated pressure (1450
4 psig, 2 Hertz -- 2 Hg -- Hz), and total cycles
5 (applying brakes 5 times per mile for 100,000 miles)
6 which exceeds conditions typically found in actual
7 motor vehicles.

8 Q. Now. I don't -- Do you know where they
9 got this 5 times per mile for 100,000 miles?

10 A. I believe they would do a mathematical
11 calculation.

12 Q. But do you know where they got that, I
13 mean, how they figured that brakes were applied 5
14 times per mile as opposed to 12 times per mile?

15 A. No, I don't know where that would've come
16 from.

17 Q. More importantly, they describe the test
18 as something that is subjecting the switch to
19 exceeding conditions typically found in actual motor
20 vehicles. And do you agree with that, that this
21 test is intended to basically test that switch to
22 levels that exceed the -- those conditions typically
23 found over the course of the life of a motor
24 vehicle?

25 A. Yes, I do.

1 Q. Now, let's just compare that particular
2 exhibit to the earlier exhibit that we had that we
3 were talking about, which I think was Exhibit 27
4 where -- Do you have Exhibit 27 there, sir?

5 A. Yes, I do.

6 Q. That was the document that was called
7 proprietary information, 77PS overview, 2-10-99.
8 That was the document that was supplied to you
9 during the course of your investigation, right?

10 A. That's correct.

11 Q. And in that particular document this same
12 test is described under the subheading: Kapton
13 diaphragms; is it not?

14 A. That's correct.

15 Q. And in that description -- We went over
16 this the other day -- they talk about some of the
17 factors that can affect the Kap -- the live
18 expectancy of Kapton, which basically are outlined
19 there. But it says: Depending go on the fact as
20 listed above, the life expectancy of a T.I. brake
21 pressure switch can vary, but typically is around
22 one million cycles, which is well above the 500,000
23 cycles specified in the Ford specification. Did I
24 read that correctly?

25 A. That's correct.

1 Q. So going back to Exhibit 60, if we can put
2 these two together, it seems that T.I.'s position is
3 that as rigorous as there test is, their switch
4 actually can outperform the test by a factor of 2?

5 A. Apparently so.

6 Q. And you mentioned the other day that --
7 that you believe that the test actually translated
8 to something like 252,000 miles of vehicle usage?

9 A. That's correct.

10 Q. And you explained how did that and I'm not
11 going to get into that. But basically, sir, would
12 you please tell us what Ford's position is with
13 regard to how this test and performance under this
14 test equates to or ties into the life of a vehicle
15 under typically found -- conditions typically found
16 in actual motor vehicles?

17 A. It -- It's our position that this test
18 exceeds the life of a typical motor vehicle.

19 Q. And is Exhibit 60 consistent with your
20 view as far as you're concerned?

21 A. Yes.

22 Q. Whether it's 100,000, 200,000, I suppose
23 all -- everybody could disagree or agree on that;
24 but bottom line is, anybody really dispute that
25 fact?

1 A. I don't believe they have.

2 Q. And over the course of a life of a
3 vehicle, no leaks?

4 A. Correct.

5 Q. Okay. Now, apparently -- Let's see if get
6 this right. The test spec is agreed upon, there's
7 an 18-month lead time to production. And fair to
8 say that T.I. begins to supply parts to Ford?

9 A. They would be providing prototype parts,
10 correct.

11 Q. Because -- Is it typical for an automobile
12 manufacturer like Ford, even as much as a year or
13 two in advance of production, to start running
14 vehicles around on the roads?

15 A. Yes, it is.

16 Q. And I suppose, with a real hot model,
17 sometimes you even see these vehicles on the road
18 with -- with -- at least, around here, with covers
19 over them so that you can't actually make out the
20 design. Do you ever see that?

21 A. I call that camouflaging.

22 Q. Camouflage. And I don't know whether they
23 did that with the Town Car or not, but in any event,
24 do they start supplying -- T.I. start supplying
25 parts to Ford, Ford builds cars and they actually

1 start driving these things around the highway be --
2 long before they're available to the dealers, right?

3 A. That's correct.

4 Q. And why do they do that? Why does Ford do
5 that?

6 A. They are trying to see what the overall
7 durability of the entire vehicle would be --

8 Q. And I --

9 A. -- and the customer usage.

10 Q. And I suppose, sometimes these -- these
11 vehicles that are being driven around like that have
12 prototype parts in them?

13 A. Yes, they would.

14 Q. And sometimes they've got parts that are
15 pretty close to production parts?

16 A. That's correct.

17 Q. What they would think would be production
18 parts?

19 A. That's correct.

20 Q. And, of course, if there are problems that
21 occur, they're reported, and hopefully there's
22 enough lead time and so forth to do something about
23 it?

24 A. That's right.

25 (Exhibit No. 61 marked.)

1 Q. Would you take a look at Exhibit 61? And
2 is that -- is that a documents for the week ending
3 11-16-90?

4 A. Yes, it is.

5 MR. MAYER: You've got to shoot us a
6 copy of that one.

7 MR. FEENEY: Have you got one? Yeah.
8 I don't want to see any of that. I have my notes on
9 there. I don't want any question here about -- I'm
10 masking my notes so that the witness does not see my
11 note.

12 Q. Okay. Exhibit 61?

13 A. Right.

14 Q. Okay. Let's take a look on the Exhibit 61
15 and see if it has anything to do with what you and I
16 were just talking about. This is a note for the
17 period ending 11-16-90. Now, we're still 11 months
18 before production here -- ten months before
19 production, right?

20 A. Approximately.

21 Q. Months after the spec's been agreed upon
22 and everything's apparently just ready to roll,
23 right?

24 A. That's correct.

25 Q. Customer Issues, take a look at that. And

1 it just says: I received a call on Tuesday from
2 Bruce Pease. It seems that a three-car fleet on
3 test in Florida was having speed control problems,
4 and for know apparent reason Bruce contacted --
5 Bruce was contacted rather than the correct person,
6 Gary Klingler. Now, let me stop you right there.
7 Why would Gary Klingler, from what you know about
8 the Ford operations, Klingler was in this group
9 called ELD. Pease was in this group called Passenger
10 Car. Why would Klingler be the guy that should've
11 been contacted in connection with problems of this
12 type?

13 A. Because he was the supervisor for the
14 speed control system.

15 Q. All right. It says: No system debug has
16 taken place yet; any blame directed to our switches
17 is arbitrary and preliminary. Nonetheless, I
18 overnighted 3 replacement sishes (sic.) -- switches
19 to Florida to placate them. Bruce will bring
20 Klingler into the loop so the real problem can be
21 determined, and ultimately our "questionable"
22 switches will be returned to us. Do you see that?

23 A. Yes.

24 Q. And then it goes on to talk about how hex
25 part. We built and Impulse tested 24 devices for a

1 disc life test and all 24 worked well, etcetera,
2 etcetera. You see that?

3 A. Yes.

4 Q. So everything seems to be going pretty
5 well. And the fact that these switches were
6 returned from Florida, we really don't know what was
7 wrong with them?

8 A. That's correct.

9 Q. We just know that some kind of problem
10 developed with the speed control?

11 A. That's correct.

12 Q. All right. So that's -- Now we're like
13 nine months before production, things look good,
14 right?

15 A. That's correct.

16 Q. And, in fact, we keep rolling along here
17 and we get to -- There's one section here -- Yeah --
18 get you to April 12th, 1991 --

19 MR. FEENEY: Mr. Reporter, now --
20 What are at -- What exhibit number are we at?

21 THE COURT REPORTER: 62.

22 MR. FEENEY: 62.

23 (Exhibit No. 62 marked.)

24 Q. I'm going to show you what's been marked
25 as Exhibit 62 which is --

1 MR. MAYER: Thank you.

2 Q. -- covers the time period, April 12th,
3 1991. Do you have that in front of you, sir?

4 A. Yes.

5 Q. And would you please -- I might just point
6 out to you that at some point here Mr. Offiler
7 must've gone on a European vacation or something and
8 he starts switching the date and the month on these,
9 so it gets a little confusing. Do you see that,
10 sir?

11 A. Yes, I do.

12 Q. Okay. So anyway, he's got the year first
13 and then the month and then the date?

14 A. Correct.

15 Q. So he's now showing it as 91-04 something
16 or other, right?

17 A. 12.

18 Q. Okay. But that probably wouldn't throw
19 you off as an engineer, but it threw me off when I
20 was looking at this stuff for quite a while. Take a
21 look at this particular document. And directing
22 your attention down -- about two-thirds of the way
23 down the page, is there a discussion about some
24 problem involving the fact that T.I. has been
25 shipping parts out of spec?

1 A. Yes, there is.

2 Q. Okay. Would you read, please, into the
3 record?

4 A. Regarding the SREAs to relax terminal
5 position from 0.30-.070 to 0.25-0.75, George has
6 signed off but Bruce's supervisor (a new individual,
7 not Frank Janosi) has raised the feared question:
8 Why have we been shipping out-of-spec 57PSFe-X's.
9 This subject will be relatively easy to dance
10 around, since we have zero RMR's relative to
11 terminals. We (QC) owe Ford a letter explaining the
12 situation. Also, along with the SREA's, Bruce has
13 asked for updated prints. The ECN for these have
14 been filed -- has been filed.

15 Q. What is an SREA?

16 A. I believe that's a Ford document which
17 stands for Supplier Request for Engineering
18 Approval.

19 Q. Okay. And can you -- I mean, there's a
20 lot of acronyms and terminology in that -- in that
21 particular paragraph. Could you translate some of
22 that for us, sir, that we can understand, perhaps,
23 what is being discussed?

24 A. I believe that Texas Instruments is
25 identifying and possibility even agreeing that

1 they've been shipping out-of-spec -- specification
2 parts, but since there haven't been any field
3 problems, they don't think it'll be an issue.

4 Q. And these out-of-specification parts, are
5 these parts other than the brake pressure switch?

6 A. I'm not exactly sure what the 57PSP3-X's
7 are, but I believe that would be related to that.

8 Q. Would -- Would these be the brake pressure
9 switches that are -- are slated for the Town Car or
10 some other part?

11 A. These would be some other part.

12 Q. Okay. So this isn't the brake pressure
13 switch involved in our Town Car?

14 A. Correct.

15 Q. And what they're saying is: Yeah, they've
16 been shipping out-of-spec parts, but none of them
17 has failed so far; so no harm, no foul?

18 A. I believe that's what they're saying.

19 Q. Okay. But it's not the brake pressure
20 switch?

21 A. This would not be the Town Car brake
22 pressure switch, as I understand.

23 Q. Okay. Now, let's go to August 16, 1991.
24 Now we're getting close to production at this point,
25 aren't we?

1 A. That's correct.

2 Q. I want to show you -- Exhibit 63.

3 (Exhibit No. 63 marked.)

4 Q. What's Exhibit 63, sir?

5 A. That's the Highlights from August 16th,
6 1991.

7 Q. August 16th. And what's the first
8 paragraph of this document, sir?

9 A. The first paragraph of this document is
10 Validation.

11 Q. And what is that a reference to, sir?

12 A. I believe that they're referring to the
13 validation tests pursuant to the engineering
14 specification that they're running just prior to
15 going into production.

16 Q. Now, is it typical for a supplier to be
17 running valenta -- validation tests right before
18 they go into production?

19 A. Yes, it is.

20 Q. Nothing unusual about the timing?

21 A. No. It may be a -- a little bit late, but
22 it's not very unusual.

23 Q. Everything kind of comes together,
24 right --

25 A. That's correct.

1 Q. -- at that point in time? So -- And after
2 all, they were working on this for -- I mean,
3 they've had -- they've had -- the test specs been
4 agreed upon for a year-and-a-half, correct?

5 A. That's correct.

6 Q. And they've basically -- the basic design,
7 therefore, has been, in essence, agreed upon for a
8 year-and-a-half?

9 A. That's correct.

10 Q. So there really haven't been any -- Do you
11 see any indication that there were any major design
12 changes or shifts in the inter -- in the intervening
13 year-and-a-half time frame?

14 A. I don't believe so, no.

15 Q. T.I.'s been supplying switches to Ford for
16 prototype builds and sample switches and so forth?

17 A. That's correct.

18 Q. And, of course, they've been doing a lot
19 of impulse testing in the laboratory, haven't they,
20 for those tests -- for those switches on those
21 samples?

22 A. I'm not sure how much they've been doing,
23 but the Highlights appear that some testing has been
24 going on.

25 Q. I mean, there are references in the

1 Highlights to the fact that samples are being
2 tested; I mean, that goes back to as early as 1990?

3 A. That's correct.

4 Q. And everything looked good?

5 A. That's correct.

6 Q. Matter of fact, except for those early
7 developmental tests in 1989, I don't remember any
8 reference in any of the Highlights in -- after those
9 initial tests that there were any problems
10 whatsoever with these switches.

11 A. I don't recall any either.

12 Q. Then we get to the eve of production,
13 August of 1991. And we look at this in the
14 Validation test and it says: The Thermal Cycle test
15 was successfully expedited in order to begin the
16 important Impulse test as soon as possible. Now,
17 the Thermal Cycle test is something different from
18 the Impulse test?

19 A. That's correct.

20 Q. And does that -- Does the Thermal Cycle
21 test evaluate or consider the durability of the
22 switch insofar as the membrane is concerned and the
23 potential for leakage?

24 A. The Thermal Cycle test may have an effect
25 on the membrane.

1 Q. Okay. So that's just kind of a
2 double-check that looks at membrane performance --

3 A. Well --

4 Q. -- to some extent?

5 A. If -- If these tests are run in -- in
6 succession with each other, then that would be a
7 pre-aging.

8 Q. Oh, so they run the Thermal Cycle test on
9 the part and then they subject the same part to an
10 Impulse test?

11 A. I don't know if that's the case. Just --
12 I don't know why they would necessarily need to
13 expedite the Thermal Cycle test if -- if they
14 weren't being run consecutively.

15 Q. Okay.

16 A. Or maybe they're on the same equipment. I
17 don't know.

18 Q. So they say half of the Impulse test is
19 run on virgin devices and the other half is to be
20 run on parts which have completed the fluid
21 resistance test. Now, can you explain what they're
22 talking about there? And if you can't, that's okay.

23 A. I believe, in the specification, there's a
24 fluid resistance test also.

25 Q. And what would be the reference to virgin

1 devises?

2 A. I guess those would be parts that were not
3 run on the fluid resistance test.

4 Q. So those parts had not been subjected, so
5 to speak, to the fluid resistance test --

6 A. Those --

7 Q. -- for those devices, I guess?

8 A. That's how I would say interpret that.

9 Q. And here, a virgin device would mean
10 simply a -- a switch that hasn't been -- hasn't
11 passed the fluid resistance test?

12 A. That's how I would interpret that.

13 Q. That's goes back to the point you were
14 making, that -- that these tests may have to be run
15 in succession; you have to demonstrate compliance
16 with the -- on the same switch with each of the
17 tests in succession?

18 A. That may be the case, yes.

19 Q. Okay. We are now running the virgin Pass
20 Car and Light Truck parts simultaneously. A
21 significant problem is occurring on the PC devices.
22 That would be the Pass Car devices?

23 A. That's what I would get -- interpret, yes.

24 Q. We have had three failures to date due to
25 fluid leakage. Autopsy of two (thus far) shows

1 fatigued Kapton; no real evidence of foreign matter
2 nor damage to the Kapton during assembly. Now, let
3 me just stop right there. This particular
4 statement, is this the first reference that you
5 could find in any of these Highlights that -- that
6 would indicate that during an impulse test, which
7 was -- basically was a production part, there was a
8 failure?

9 A. In that these -- You know, August of 1991
10 are probably the first proof of, shall we say,
11 production parts that are going to be available;
12 that would be true.

13 Q. And the failure that occurred in August of
14 1991 was fluid leakage?

15 A. That's correct.

16 Q. And according to this document, they're
17 attributing the failure, at least, in two out of two
18 of the switches so far looked at, to fatigued
19 Kapton; is that right?

20 A. That's correct.

21 Q. Now, this says there's no evidence of any
22 damage to the Kapton during assembly. Did you --
23 Did I -- Are you reading that the same way I am?

24 A. That seems to be what it's saying.

25 Q. So apparently what this is indicating is,

1 that in these tests, for whatever the reason, there
2 was a failure of the Kapton not due to any sort of a
3 manufacturing anomaly; it just failed?

4 A. That's what this appears to be saying.

5 Q. And it didn't even reach 500K?

6 A. That's correct.

7 Q. It reached 325 of 500k; is that right?

8 A. That's correct.

9 Q. Well, short of the life of the vehicle and
10 the life of the part?

11 A. That's correct.

12 Q. Now, did -- Let me just ask you this
13 question: If -- If it is the case that a part in
14 the field could leak simply due to fatigue with no
15 real evidence of manufacturing defect, I mean, I
16 suppose that's a possibility, huh?

17 A. That appears to be the case here, yes.

18 Q. I mean, that might explain why it's been
19 so darn difficult to get your hands around exactly
20 what was causing the leakers in the field?

21 A. Yes.

22 Q. Have you ever seen any written material
23 from T.I. after this date that has ever contradicted
24 the idea that you can get leakage through a Kapton
25 membrane simply due to its prematurely wearing out

1 with absolutely zero physical evidence of a
2 manufacturing defect?

3 A. I guess I'm not sure I know how to answer
4 that question.

5 Q. Well, is -- have there been any later
6 tests done that you've ever seen that basically
7 rules that out?

8 A. No, there haven't.

9 Q. Okay. Now, this says: Stan Homol is
10 providing valuable assistance in failure analysis.
11 Note: We are AMI-built PC and LT side-by-side.
12 Now, AMI-built passenger car and Light trucks side
13 by side, what is the reference to AMI?

14 A. I believe AMI is reference to a -- one of
15 their pieces of handling equipment.

16 Q. Okay. And they're saying, no failures on
17 the Light Truck parts which is directing failure
18 analysis towards did cup. What does that mean?

19 A. Again, I believe the reference prior, the
20 cup is part of the switch that gets crimped to
21 hold -- hold the switch together and keep the Kapton
22 in place.

23 Q. So it says: We are continuing to run the
24 test for two reasons. One, to attempt to complete
25 the LT part successfully; and two, to continue to

1 fail PC parts to provide additional F/A -- Failure
2 Analysis clues, right? Hypothesis -- Hypotheses
3 include: Increased converter travel in the rebump
4 design; extraordinarily tight sensor crimp as
5 evidenced by the deformations where the Kapton
6 layers overlap; very flat washers (unlike the norm,
7 which is slightly cup-shape) which may also
8 contribute to tight crimp. We are giving this
9 matter top priority. At this point, it is safe to
10 assume that the PC parts presently undergoing Fluid
11 Resistance will also fail on impulse. This means
12 that after the problem is corrected, at the very
13 least the Fluid Resistance test will need to be
14 re-run, or at worst the entire validation will have
15 to be re-run from scratch, which is about a
16 nine-week process either way. We are trying to
17 determine how best to approach Ford with this news.
18 Did I read that right?

19 A. Yes.

20 Q. What's an 8-D?

21 A. It's a technique used by Ford Motor
22 Company. It's short for 8-discipline, which are
23 eight steps to reviewing a -- reviewing and
24 resolving a -- an issue.

25 Q. Ford Motor Company uses an 8-D process.

1 Does -- Does it -- Does it mandate that its
2 suppliers use an 8-D process?

3 A. I'm not sure if its mandates the suppliers
4 to do that. But since those are the questions that
5 Ford Motor Company will ask in reviewing a problem,
6 it certainly behooves a -- a supplier to use that
7 process.

8 Q. Is it true that -- that -- that when T.I.
9 encountered these failures in August of '91, they
10 were -- at least, according to this document, they
11 were focusing on a whole -- a series of a
12 combination of potential manufacturing issues
13 that -- that all centered on crimping?

14 A. That appears to be what this paragraph is
15 referring to.

16 Q. Is it also true that your understanding of
17 this though is that -- that while they were looking
18 at various crimping issues, that -- that these
19 crimping anomalies or problems would not produce any
20 sort of real evidence of any damage to the Kapton?

21 A. That's what the earlier statement says.

22 Q. So if I understands this right, you could
23 have a crimping problem; there'd be no physical
24 evidence of it in the Kapton, but there'd still be a
25 leak?

1 A. That's correct.

2 Q. That would make it pretty hard to figure
3 out in the field if there was leakage, you know,
4 somewhat really happened?

5 A. That would make it difficult to
6 investigate a problem like that, yes.

7 Q. Did you find this problem to be difficult
8 does investigate?

9 A. Yes, I did.

10 MR. FEENEY: Could we take a few
11 minutes --

12 MR. MAYER: Sure.

13 MR. FEENEY: -- at this time?

14 THE VIDEOGRAPHER: Off the record.
15 The time is 3:03:53.

16 (Recess taken.)

17 THE VIDEOGRAPHER: Okay.
18 Microphones.

19 MR. FEENEY: Okay. We don't need the
20 video. We just need the paper record.

21 THE VIDEOGRAPHER: Back on the
22 record. The time is 3:08:27. This is the end of
23 the deposition for the day.

24 MR. MAYER: No.

25 THE VIDEOGRAPHER: The time is now

1 3:08:34.

2 MR. FEENEY: Okay. On the paper
3 record, I -- I -- I suggest that we adjourn the
4 deposition at this point to be resumed at -- at a
5 date mutually convenient. But my suggestion is that
6 since we're going to have a discovery conference
7 call for scheduling purposes next Tuesday, we
8 make -- put that on the agenda and we agree on a
9 date. And that my suggestion is that it be
10 expedited and you want it a priority item so we can
11 complete this one and move on at the earliest
12 opportunity.

13 MR. MAYER: That's agreeable to Texas
14 Instruments?

15 MR. JOLLY: And agreeable to the
16 Plaintiffs.

17 MS. WEINER: I'm agreeable too.

18 (Proceedings concluded.)
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	CHANGES AND SIGNATURE		
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1 I, FREDERICK JAMES PORTER, have read the
 2 foregoing deposition and hereby affix my signature
 3 that same is true and correct, except as noted
 4 above.

5
 6 FREDERICK JAMES PORTER

7
 8
 9 THE STATE OF _____)

10 COUNTY OF _____)

11
 12 Before me, _____, on this day
 13 personally appeared FREDERICK JAMES PORTER, known to
 14 me (or proved to me on the oath of
 15 _____ or through

16 _____ (description of identity
 17 card or other document)) to be the person whose name
 18 is subscribed to the foregoing instrument and
 19 acknowledged to me that he executed the same for the
 20 purposes and consideration therein expressed.

21 (Seal) Given under my hand and seal of office
 22 this _____ day of _____, _____.

23
 24 NOTARY PUBLIC IN AND FOR
 25 THE STATE OF _____

PRECISION CONTROLS DESIGN ENGINEERING
DESIGN REVIEW - 18 MAY 1989
MY92 CRUISE CONTROL PRESSURE SWITCH



OVERVIEW

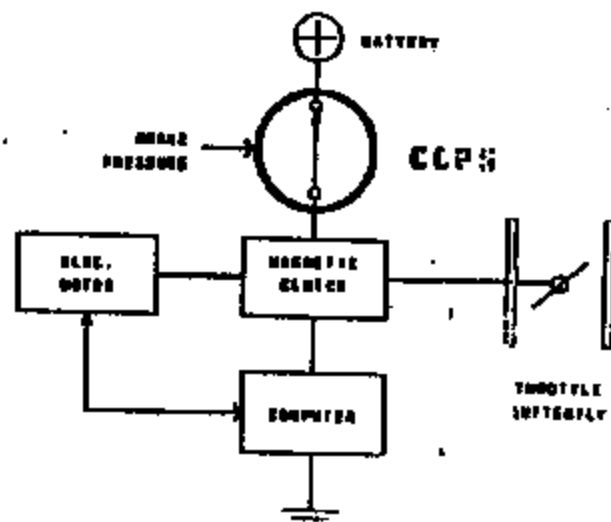
THE CCPS IS A REDUNDANT SAFETY DEVICE IN A NEW, VACUUM-LESS ELECTRONIC CRUISE CONTROL DESIGNED BY FORD.

FUNCTIONALLY, IT REPLACES THE PRESENT VACUUM DUMP VALVE BY DE-ENERGIZING A CLUTCH WHICH CONNECTS THE THROTTLE TO AN ELECTRIC ACTUATOR.

IT IS PLUMBED INTO THE BRAKE LINE. WHEN THE DRIVER APPLIES PRESSURE TO THE BRAKE PEDAL, THE NORMALLY-CLOSED SWITCH OPENS, DISCONNECTING THE ACTUATOR FROM THE THROTTLE BUTTERFLY.

SPECIFICATIONS:

ACTUATION: 150 PSI +/- 50
RELEASE: 100 PSI MIN.
BURST: 7000 PSI
CYCLES: 500K, 0 - 1460 PSI, 2 Hz
VOLTAGE: BATTERY
CURRENT: 0.75 AMP



IN THE CIRCUIT COURT OF JACKSON COUNTY, MISSISSIPPI

OUIDA CAMPBELL AND JAMES R. CAMPBELL

PLAINTIFFS

VERSUS

FORD MOTOR COMPANY, D & L, INC. OF
COLLINS ~~aka~~ D & L, INC., AND
WOOLWINE FORD LINCOLN-MERCURY,
INC., Successor in Interest to D&L FORD, INC.;
E.I. DU PONT de NEMOURS AND COMPANY;
TEXAS INSTRUMENTS INCORPORATED; AND
DEFENDANTS 1-1000

CASE NO. CL-99-0211(3)
RECEIVED

NOV 16 2000

BAKER, DONELSON
BEARMAN & CALVERT DEFENDANTS

**TEXAS INSTRUMENTS' MOTION TO COMPEL
FORD MOTOR COMPANY TO FULLY ANSWER DISCOVERY**

COMES NOW the separate defendant, TEXAS INSTRUMENTS INCORPORATED ("TI"), in the above styled and numbered cause, by and through their attorneys of record and file this Motion to Compel Ford Motor Company ("Ford") to fully and completely answer TI's Interrogatories and Requests for Production of Documents in this cause and would show unto the Court the following to wit:

I. BACKGROUND

Over the last ten years, Ford has recalled dozens of vehicle models, totaling tens of millions of cars, for various defects causing underhood fires. At issue in this case, is a speed-control deactivation switch ("switch") manufactured by Texas Instruments for several Ford vehicle models, including 1992 Lincoln Towncars. The function of this switch is to disengage a vehicle's cruise control when the driver applies her brakes.

Although Ford's internal documents indicate that it did not know what was causing underhood fires in 1992 Lincoln Town Cars, Ford nonetheless issued a recall of TI's switch in May 1999. Since that time, Ford has added TI as a third party defendant in all of its underhood fire cases



involving 1992 Town Cars and related models. In these cases, Ford generally alleges that the switch manufactured by Texas Instruments is defective and caused the fire in that case.

Ford's allegation regarding TI's switch is based solely upon statistics. However, there are three principal problems with Ford's "statistical" allegation: (1) there is no physical evidence that Texas Instruments' switches were defective; (2) Ford's own engineers have admitted that no fires would originate in TI's switches if Ford had not designed its speed control system so that those switches would receive a large amount of continuous power, and (3) Ford's own data shows that only a small percentage of the Town Cars that burned, exhibited symptoms which would be consistent with a TI speed control switch issue.

TI believes that both the Plaintiffs and Ford will attempt to show at trial that the fire at issue in this case resulted from alleged defects in TI's manufacture and design of this switch. Hence, TI is entitled to responsive documents and complete discovery responses to uncover the truth behind these allegations and Ford's statistical data.

II. Texas Instruments Is Entitled to Know the Basis for Ford's Switch Specifications.

Texas Instruments' automotive pressure switches, including the switch at issue, are custom-designed and manufactured pursuant to specifications provided by the automaker ordering the switches. It is universally recognized in the automotive industry that component-part suppliers must rely on automobile manufacturers to provide proper specifications so that a component part will fit into the complex systems that make up an automobile. In other words, component-part suppliers do not know, cannot know, and are not expected to know the details of how an automobile's engine and other underhood systems are designed to function.

For instance, TI believes Ford established a design specification of 500,000 cycle-life¹ for the subject switch based on erroneous brake-application data. Additionally, Texas Instruments believes that its switches may be subject to excessive wear because of anomalies in the anti-lock brake and traction-control systems of the 1992-1993 Panther Platform vehicles. Ford claims that TI's defective design and/or manufacturing caused these switches to fail. In other words, TI intends to show that any failure of the switch at issue resulted from, among other things, Ford's improper switch specifications.

Inexplicably, Ford objects to producing the underlying data to support its design specifications for TI's switch. Ford further objects to providing Texas Instruments with the data to which it is entitled to test Ford's specifications. (Exhibit 1 [Ford's Objections to TI's Request for Production] Nos. 2, 3, 25, 26, 73, 74, 80, 81, 85, 86, 100-102; and Exhibit 2 [Ford's Objections to TI's Interrogatories] Nos. 3-8) Texas Instruments is entitled to discovery to support its claim that the 500,000 cycle-life specification was improperly determined.

Even more troubling, is that Ford objects to any discovery of the documents concerning the alleged defects with the then-relatively new technology of anti-lock brake systems (ABS) and the traction-control systems of 1992-1993 Panther Platform vehicles. Ford's own documents show that these systems did not function properly on many of the recalled vehicles. (Exhibit 4) The malfunctioning of either system could have caused the switch to experience a 500,000 cycle-life prematurely. Accordingly, Ford's objections to producing such evidence should be overruled.

¹Each switch "cycle" means a single application of the brake pedal by the driver. In other words, Ford required TI to manufacture the switch so that its average life expectancy (i.e. "cycle-life" or "life-cycle") would be 500,000 pushes on the brake pedal by the driver.

III. Ford's Statistical Analysis of Underhood Fires Attributed to TI's Switch is Flawed

Ford's statistical analysis regarding TI's switches, a Ford Field Review Committee Report, consists entirely of two graphs purporting to show a spike in fires coinciding with a change in TI's manufacturing process (i.e. the automatic crimping process). (Exhibit 3 at 11-12) However, Ford's analysis suffers from a number of flaws. First, Ford's statistics are not backed up by its own Field Review Committee report, which concludes that:

A root cause [of these underhood fires] has not been conclusively identified. However, analyses have found that some speed control deactivation switches are susceptible to brake fluid leaks and corrosion that can create a conductive path in the switch resulting in overheating. Analysis performed on field samples of the speed control deactivation switches involved in underhood fires has not allowed us to conclude that the speed control deactivation switch was the cause of all of the fires.

(Exhibit 3 at 2)

In fact, of the 153 fires analyzed by the Field Review Committee Report, 86 are not attributed to the switch because they occurred with the engine on. Of the remaining 67 fires, only 13 occurred in vehicles that had exhibited symptoms of switch failure. In other words, Ford could attribute only 13 of 153 fires to TI's switch. (Exhibit 3 at 6) Despite the fact that Ford could attribute only 8.5% of all fires to TI's switch, Ford's statistical analysis treats all 1992-1993 Panther Platform fires as if they originated in the switch.

Ford has never revealed how it selected fires to include on its graphs. It appears that Ford may have selectively chosen fires specifically for the purpose of showing a spike in fires at the time that it wanted there to be a spike in fires.

Ford now objects to Texas Instruments' attempts to discover evidence of other root causes of these fires. (Exhibit 1, Request Nos. 7, 12-19, 24, 33-35, 48-49, 53, 58-62, 64-66, 80-81, 87-89, 93-98, 100-102); Exhibit 2, Interrogatory Nos. 3-9) Evidence of other system failures are relevant

and discoverable; especially in this case where independent and Ford's own experts agree the fire involving the Campbell's car did not start near the switch.²

Evidence of failures for other components adjoining TI's switch are likewise relevant and discoverable. (Exhibit 1, Request Nos. 8-23) Texas Instruments' investigation revealed that defective connectors³ or improper connector installation establish conditions which could lead to fires originating in some of its switches. Because Texas Instruments did not manufacture or install the mating connector, it cannot be held responsible for connector leakage. The Court should overrule any objection by Ford to these discovery requests.

WHEREFORE, PREMISES CONSIDERED, Texas Instruments respectfully requests this court overrule Ford's Objections to its discovery requests and order the Plaintiff to answer within five (5) days TI's Request Nos. 2, 3, 7, 8-26, 33-35, 48-49, 55, 58-62, 64-66, 73-74, 80-89, 93-98, and 100-102 and TI's Interrogatory Nos. 3-9.

Respectfully submitted,

TEXAS INSTRUMENTS INCORPORATED

BY:


STEPHEN W. BURROW (MSB #9377)

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² On November 9, 2000, Ford's counsel informed Texas Instruments' counsel that Ford would make a supplemental production as indicated in its response to Texas Instruments' requests by Wednesday, November 14, 2000, the day before the Ford's key witnesses are to be deposed. This motion to compel does not address those document requests.

³ A "connector" is the component that joins TI's switch to the vehicle's electrical system.

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CERTIFICATE OF SERVICE

I, Stephen W. Burrow, do hereby certify that I have this day served, via United States mail, first class postage prepaid, a true and correct copy of the above and foregoing to:

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NEMOURS AND COMPANY

SO CERTIFIED, this the 14th day of November, 2000.


STEPHEN W. BURROW



IN THE CIRCUIT COURT OF JACKSON COUNTY, MISSISSIPPI

QUIDA CAMPBELL and JAMES R. CAMPBELL

PLAINTIFFS

VERSUS

**FORD MOTOR COMPANY, D&L, INC. OF
COLLINS /w/ D&L, FORD, INC., WOOLWINE
FORD LINCOLN-MERCURY, INC., Successor in
Interest to D&L FORD, INC., E.I. DU PONT DE
NEMOURS AND COMPANY, AND TEXAS
INSTRUMENTS INCORPORATED**

CASE NO. CI-99-0211(3)

DEFENDANTS

**FORD MOTOR COMPANY'S OBJECTIONS AND RESPONSES TO CO-DEFENDANT
TEXAS INSTRUMENTS INC'S REQUEST FOR PRODUCTION OF DOCUMENTS**

Now comes the Defendant, Ford Motor Company ("Ford"), as it submits its Objections and Responses to Co-defendant Texas Instruments Inc's Request for Production of Documents.

Respectfully submitted,

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By 
Jeffrey E. Manske
Texas State Bar No. 12956420

ATTORNEYS FOR DEFENDANT
FORD MOTOR COMPANY

AKB:TEP/MLJ
11/16/00

CERTIFICATE OF SERVICE

This is to certify that a true and correct copy of the above and foregoing has been forwarded to the following counsel of records on this 11th day of November, 2000, as follows:

Via Certified Mail - Return Receipt Requested
and Via Overnight

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Jeffrey C. Manske

PRELIMINARY STATEMENT AND GENERAL OBJECTIONS

This action arises out of an incident allegedly involving a 1992 Lincoln Town Car vehicle identified by Vehicle Identification Number ("VIN") 1LNLM81W7NY [REDACTED]. Ford has not completed its investigation of the facts relating to this litigation. Consequently, Ford's responses to Co-Defendant's Requests reflect all of the responsive information identified by Ford before the date of these responses, pursuant to a reasonable and duly diligent search conducted in connection with this discovery in those areas where such information is expected to be found. To the extent that the Requests purport to require more, Ford objects on the grounds that: (a) the Requests seek to compel Ford to conduct a search beyond the scope of permissible discovery contemplated by the applicable rules of evidence and procedure, and (b) compliance with the Requests would impose an undue burden and expense on Ford. The following answers are given without prejudice to Ford's right to produce evidence of any subsequently discovered facts. Ford also reserves the right to assert additional privileges if warranted by new documents or evidence discovered at a later date.

Further, some of the documents which Ford produces in response to co-defendant's discovery Requests may refer to other documents, people and events that have not been located in Ford's duly diligent search. Ford has not studied each and every document produced for the purposes of: (1) identifying each and every document, event or person referred to in those documents, (2) determining whether each and every document, event or person referred to might relate to some issue in this lawsuit, or (3) determining whether each and every document, event or person referred to has been otherwise disclosed in the course of discovery in this case. Requiring Ford to conduct such a search would be unreasonably burdensome and essentially unending, because any information referred to would refer, in turn, to additional documents, people and events, that, in turn, would refer to still others, and so on. If, however, upon Co-defendant's review of the material being produced,

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Co-defendant's believe particular referenced documents may be relevant and requests Ford to produce them, providing Ford with a description of the requested documents so that further inquiry and search can be made, Ford will conduct a reasonable supplemental search. If the documents are located and are relevant and discoverable, Ford will produce them in a supplemental response. If the documents cannot be located, or upon review are irrelevant or otherwise nondiscoverable, Ford will inform Co-defendant.

OBJECTIONS APPLICABLE TO MORE THAN ONE REQUEST

Ford objects to Co-defendant's use of the terms or phrases "any," "all," and/or "any and all" on the grounds these terms and phrases are: (a) overly broad, (b) unduly burdensome, (c) vague and ambiguous and (d) seek documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence. Ford incorporates this objection into any request propounded by Co-defendant which uses the terms or phrases "any," "all," and/or "any and all."

In addition, for each Request that references 1.1 SCSC, SCS and ABS, Ford objects on the grounds that it: (a) is vague and ambiguous, and (b) is undefined and requires Ford to speculate as to Texas Instruments' intended meaning. Ford will respond to such Request on the basis they are seeking information regarding the 1992 and 1993 Panther Platform vehicles.

Finally, Ford objects to Co-defendant's definitions to the extent they purport to require Ford to take action or provide information beyond the requirements of the Mississippi Rules of Civil Procedure. Ford will comply with the requirements of such rules. In addition, to the extent Co-defendant ascribes special meanings or definitions to words used in this set of discovery, Ford objects to the specialized meanings and definitions and interprets all words contained in this set of discovery in accordance with their ordinary and customary meanings.

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RESPONSES TO INDIVIDUAL REQUEST FOR PRODUCTION

Subject to the foregoing statements and objections, Ford responds to each individual Request for Production as follows:

REQUEST FOR PRODUCTION NO. 1

Please produce all documents referring or relating to the subject fire

RESPONSE:

Ford refers Texas Instruments to all pleadings and oral/written discovery, including document production, previously served by all parties in this case.

To the extent this request seeks additional documents, Ford objects on the grounds that it is overly broad and unduly burdensome.

REQUEST FOR PRODUCTION NO. 2

Please produce all documents relating to Ford's decision to provide a 500,000-cycle-life specification for the subject switches.

RESPONSE:

Based on information and belief and on prior course and dealing with Texas Instruments, Ford states that the decision to provide a 500,000-cycle-life, at 1450 PSI and 135° C for the subject switches was based upon a specification proposed by Texas Instruments to Ford. In support of the above, Ford refers Texas Instruments to the following documents:

1. Ford engineering specification ES-E7SC-2C283-AA produced by Texas Instruments identified by document range 0232-0244; and
2. Documents provided by Texas Instruments which are identified by document range 004278-004386, 007670 and 008983-009086.

Ford states its investigation is on going and continuing and reserves the right to supplement as additional material become available.

ALL INFORMATION
IS UNCLASSIFIED

REQUEST FOR PRODUCTION NO. 3

Please produce all documents discussing, analyzing, or referencing Ford's 500,000-cycle-life specification for the subject switches.

RESPONSE:

Ford incorporates its response to Request for Production No. 2. Additionally, Ford refers Texas Instruments to document no. 001097 from Texas Instrument's document production. Further, Ford will produce Michelle Vogler's file materials which are responsive to this Request no later than ten (10) days prior to her deposition or within thirty (30) days from service of this pleading.

REQUEST FOR PRODUCTION NO. 4

Please produce all switches and connectors that were returned to Ford as a result of the 1999 recall of certain 1992-1993 Panther Platform vehicles.

RESPONSE:

Ford states that subject switches and connectors returned to Ford as a result of the recall referenced above remain available for review and inspection upon reasonable notice and request. Ford objects to producing the same to Texas Instruments or their counsel at their requested place of production on the grounds that such request is unduly burdensome.

REQUEST FOR PRODUCTION NO. 5

Please produce all documents containing or discussing any analysis, testing, or examination of any switches and connectors that were returned to Ford as a result of the 1999 recall of certain 1992-1993 Panther Platform vehicles.

RESPONSE:

Without waiving its objections, Ford has previously produced documents responsive to this Request. Additionally, Ford also incorporates its objections and responses to Request Nos. 20-23 of this pleading.

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Ford objects to this Request to the extent it seeks documents which are protected from disclosure on the basis of the attorney-client privilege or the attorney work-product doctrine.

REQUEST FOR PRODUCTION NO. 6

Please produce the contract identified in response to Interrogatory Number 1.

RESPONSE:

Ford refers to and incorporates its answer to Interrogatory No. 1 to Texas Instruments' First Set of Interrogatories to Ford.

REQUEST FOR PRODUCTION NO. 7

Please produce all documents related to the subject switch, allegations regarding fires originating in the subject switch, or Ford's investigation or analysis of under-the-hood fires in 1992-1993 Panther Platform vehicles.

RESPONSE:

Ford states that documents responsive to this Request have previously been produced. Ford also incorporates its objections and response to Request for Production Nos. 1, 5 and 39.

To the extent this Request seeks documents other than those noted above, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome and (c) seeks documents protected from disclosure on the basis of the attorney-client privilege or the attorney work-product doctrine.

REQUEST FOR PRODUCTION NO. 8

Please produce all documents, including but not limited to correspondence, sent by you to Hilite Industries, which relate or refer to the subject switches or subject connectors.

RESPONSE:

Ford refers Co-defendant to the following documents which have previously been produced:

1. specifications between Ford and Hilite regarding prop valve ES-E73C-7B891-AA;

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2. assembly drawing sufficient to depict the proportioning valve; and
3. correspondence between Ford and Hillite regarding Ford's investigation of the subject brake pressure switch fires identified by document range 3713 8541-8542, 3713 8543-8544 and 3713 8545-8551.

To the extent this Request seeks documents other than those noted above, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 9

Please produce all documents, including but not limited to correspondence, sent by Hillite Industries to you, which relate or refer to the subject switches or subject connectors.

RESPONSE:

Ford incorporates its response and objections to Request for Production No. 8.

REQUEST FOR PRODUCTION NO. 10

Please produce all documents, including but not limited to correspondence, sent by you to Hillite Industries relating or referring to your investigation or analysis of under-the-hood fires in 1992-1993 Panther Platform vehicles.

RESPONSE:

Ford incorporates its response and objections to Request for Production No. 8.

REQUEST FOR PRODUCTION NO. 11

Please produce all documents, including but not limited to correspondence, sent by Hillite Industries to you relating or referring to your investigation or analysis of under-the-hood fires in 1992-1993 Panther Platform vehicles.

RESPONSE:

Ford incorporates its response and objections to Request for Production No. 8.

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REQUEST FOR PRODUCTION NO. 12

Please produce all documents, including but not limited to correspondence, sent by you to United Technologies Automotive, Inc., which relate or refer to the subject switches or subject connectors.

RESPONSE:

Ford refers Co-defendant to the following documents which have previously been produced:

1. engineering specifications for the connector; and
2. assembly drawings for the connector.

To the extent this Request seeks documents other than those above, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 13

Please produce all documents, including but not limited to correspondence, sent by United Technologies Automotive, Inc., to you, which relate or refer to the subject switches or subject connectors.

RESPONSE:

Ford incorporates its response and objections to Request for Production No. 12.

REQUEST FOR PRODUCTION NO. 14

Please produce all documents, including but not limited to correspondence, sent by you to United Technologies Automotive, Inc. relating or referring to your investigation or analysis of under-the-hood fires in 1992-1993 Panther Platform vehicles.

RESPONSE:

Ford incorporates its response and objections to Request for Production No. 12.

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REQUEST FOR PRODUCTION NO. 15

Please produce all documents, including but not limited to correspondence, sent by United Technologies Automotive, Inc. to you relating or referring to your investigation or analysis of under-the-hood fires in 1992-1993 Panther Platform vehicles.

RESPONSE:

Ford incorporates its response and objections to Request for Production No. 12.

REQUEST FOR PRODUCTION NO. 16

Please produce all documents referring or relating to the design, manufacture, or composition of the environmental seal in the subject connectors.

RESPONSE:

After a reasonable and duly diligent search, Ford does not have an individual component drawing for the item in this Request. Ford only has an assembly drawing for the connector which depicts this component. Accordingly, Ford refers Texas Instruments to Request for Production No. 12.

To the extent this Request seeks documents other than those above, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 17

Please produce all documents referring or relating to the design, manufacture, or composition of the connector shell in the subject connectors.

RESPONSE:

After a reasonable and duly diligent search, Ford does not have an individual component drawing for the item in this Request. Ford only has an assembly drawing for the

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connector which depicts this component. Accordingly, Ford refers Texas Instruments to Request for Production No. 12.

To the extent this Request seeks documents other than those above, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 18

Please produce all documents related to the design, composition, or manufacture of the wire insulation seals in the subject connectors.

RESPONSE:

Ford refers Plaintiff to the component drawing for the wire insulation seals for the mating connector associated with the subject switch which has previously been produced.

To the extent this Request seeks documents other than those above, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 19

Please produce all documents referring or related to the design, composition, or manufacture of the wire harness which was attached to the subject switch.

RESPONSE:

Ford refers Co-defendant to the component drawing for the wire harness which is attached to the subject switch which has previously been produced.

To the extent this Request seeks documents other than those above, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are

neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 20

Please produce all documents sent by you to Robert Panek which relate in any way to the subject switches or underhood fires in 1992-1993 Panther Platform vehicles.

RESPONSE:

Ford states that documents responsive to this Request have previously been produced.

To the extent this Request seeks documents other than those above, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents protected from disclosure on the basis of the attorney-client privilege or the attorney work-product doctrine.

REQUEST FOR PRODUCTION NO. 21

Please produce all documents sent by Robert Panek to you, which relate in any way to the subject switches or underhood fires in 1992-1993 Panther Platform vehicles.

RESPONSE:

Ford states that the documents previously produced to Co-defendant pursuant to various and numerous discovery requests are responsive to this Request.

To the extent this Request seeks documents other than those above, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents protected from disclosure on the basis of the attorney-client privilege or the attorney work-product doctrine.

REQUEST FOR PRODUCTION NO. 22

Please produce all documents sent by you to Exponent, which relate in any way to the subject switches or underhood fires in 1992-1993 Panther Platform vehicles.

RESPONSE:

Ford objects to this request on the grounds that it is overbroad. Ford also objects to providing documents other than those which relate to the subject switches and the investigation of the same. Ford further objects to this Request to the extent it seeks documents which are protected from production pursuant to the attorney-client privilege or the attorney work product doctrine. Subject to the foregoing objection, Ford has previously produced responsive documents from Exponent. Additionally, Ford will supplement its response to this request by producing, or making available for copying, additional documents provided to or received from Exponent no later than thirty (30) days from the service of this pleading.

REQUEST FOR PRODUCTION NO. 23

Please produce all documents that you have received from Exponent related to the subject switches or any under hood fires in 1992-1993 Panther Platform vehicles.

RESPONSE:

Ford incorporates its objections and response to Request for Production No. 22.

REQUEST FOR PRODUCTION NO. 24

Please produce the system Failure Mode and Effects Analysis (FMEA) for the cruise control and brake systems in the 1992-1993 Panther Platform vehicles.

RESPONSE:

After a reasonable and duly diligent search, Ford states that the Failure Mode and Effects Analysis ("FMEA") for the speed control system for the 1992 and 1993 model year Panther Platform vehicles has not been located. In a spirit of cooperation, Ford refers Co-

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defendant to the Failure Mode and Effects Analysis for the automatic vehicle speed control sub-system, revision 1997.10.10 which has previously been produced.

Ford objects to producing the FMEA for the brake system on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 25

Please produce all documents provided to and received from any of your experts from any party in this suit.

RESPONSE:

Ford incorporates its objections and responses to Request for Production Nos. 1, 5, 20 through 24, 36 and 39. Additionally, Ford states that the documents produced pursuant to Plaintiffs' and Texas Instruments requests for production and those received from all parties on the subject litigation may have been reviewed by Ford testifying experts. Further, inspection notes and photographs from any inspection of the Campbell vehicle have been requested and will be produced no later than ten (10) days prior to each expert's deposition.

Ford also objects to this request to the extent it seeks documents and/or materials immune from discovery pursuant to the consulting expert's privilege.

REQUEST FOR PRODUCTION NO. 26

Please produce all documents that were reviewed or relied upon by Ford in designing the 500,000-brake-cycle specification for the subject switches.

RESPONSE:

ALBERT W. BAKER
DONELSON-JACKSON

Ford objects to this Request on the grounds that it is argumentative to the extent it incorrectly suggests that Ford proposed or designed the subject specification. Ford incorporates its response to Request for Production Nos. 2 and 3.

REQUEST FOR PRODUCTION NO. 27

Please produce all documents that were reviewed or relied upon by Ford in designing the cruise control/brake system's requirement that the subject switch receive continuous power at all times.

RESPONSE:

Based on information and belief, Ford states that pursuant to record retention policies, documents responsive to this request are no longer available. However, Ford states that Gary Klingler is an individual who is knowledgeable about the subject matter of this request as it relates to the speed control system.

To the extent this Request seeks documents other than those above, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 28

Please produce all documents (including data obtained by Ford) related to any examination of the subject switches.

RESPONSE:

Ford objects to this Request on the grounds it (a) is overly broad, (b) is unduly burdensome and (c) seeks documents immune from discovery pursuant to the attorney-client privilege, consulting expert privilege and attorney work product doctrine.

Subject to the forgoing objections, Ford refers Texas Instruments to its responses to the previous and following Requests for Production.

REQUEST FOR PRODUCTION NO. 29

Please produce all correspondence between Ford and Kelsey Hayes regarding Ford Part No. F2VC-9F924-AB.

RESPONSE:

Based on information and belief, Ford states it is not aware of correspondence arising out of the investigation into the subject brake pressure switches which is responsive to this Request. To the extent this request seeks information or documents other than identified above, Ford objects on the ground that the request is overly broad, unduly burdensome and not reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 30

Please produce all correspondence between Ford and Hilti Industries Inc. regarding Ford Part No. F2VC-9F924-AB.

RESPONSE:

Ford incorporates its responses and objections to Request for Production Nos. 8, 9, 10 and 11.

REQUEST FOR PRODUCTION NO. 31

Please produce all ISR submissions regarding Ford Part No. F2VC-9F924-AB.

RESPONSE:

Ford refers Texas Instruments to its documents previously produced for ISR submissions responsive to this Request. Specifically the initial report of ISR testing prepared by Texas Instruments begins at Texas Instruments Bates No. 001734. The addendum to the initial report can be found at Texas Instruments Bates No. 002919.

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To the extent this Request seeks documents other than those above, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 32

Please produce all service/warranty data regarding Ford Part No. FZVC-9F924-AB.

RESPONSE:

Without waiving the objections stated below, Ford refers Plaintiff to the applicable service warranty data regarding FZVC-9F924-AB through November 1998 for 1992 and 1993 model year Panther Platform vehicles which was previously produced.

To the extent this Request seeks documents other than those above, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 33

Please produce Service Bulletins TSB Nos. 98-5A-6, 98-5A-13, 98-5A-4, 98-5A-7, 98-5A-11, 9562, 94252, 94212, 93183, 93162, 92192, 9211B4, 92124, and 97-19-4.

RESPONSE:

Ford objects to this Request on the grounds that it seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 34

Please produce all documents related to General Recalls TSB Nos. 93B21 and 93B25.

RESPONSE:

Ford objects to this Request on the grounds that it seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 35

Please produce all documents related to Safety Recalls TSB Nos. 96B85 and 92S43

RESPONSE:

Ford objects to this Request on the grounds that it seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 36

Please produce all data or documents that discuss or analyze vehicle build data and/or numbers of 1992-1993 Panther Platform vehicles involved in under-the-hood fires.

RESPONSE:

All documents responsive to this Request have been provided to Ford's testifying expert Michelle Vogler for analysis. All responsive documents have been requested and will be produced no later than 10 days before Michelle Vogler's deposition or within thirty (30) days of service of this pleading.

REQUEST FOR PRODUCTION NO. 37

Please produce all data on switch build date codes for any switch analyzed or returned to Ford.

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RESPONSE:

Ford objects to this Request to the extent it seeks documents which are protected from production pursuant to the attorney-client privilege or the attorney work product doctrine. Ford's responsive data on the switch build date codes for switches analyzed and/or returned to Ford has previously been produced. Ford also incorporates its objections and responses to Request for Production Nos. 20 through 23.

REQUEST FOR PRODUCTION NO. 38

Please produce all data on vehicle build dates for any 1992-1993 Panther Platform vehicle involved in an under hood fire.

RESPONSE:

Subject to the foregoing objection, Ford objects to this request on the grounds that it is overly broad and unduly burdensome. Ford incorporates its objections and responses to Request for Production No. 36.

REQUEST FOR PRODUCTION NO. 39

Please produce all documents sent to and received from NHTSA regarding the 1992-1993 Panther Platform vehicles.

RESPONSE:

Ford states all documents sent to and received from NHTSA regarding 1992 and 1993 model year Panther Platform vehicles for PE 98-055 were contained in the materials previously produced.

To the extent this Request seeks documents other than those above, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

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REQUEST FOR PRODUCTION NO. 40

Please produce all documents produced by Ford in State Farm Mutual et al v. Ford Motor Co., et al., No. 98-CV-2855, in the U.S. District Court for the District of New Jersey, Camden Division.

RESPONSE:

Ford objects to this Request on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks the production of documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 41

Please produce all documents produced to Ford in State Farm Mutual et al. v. Ford Motor Co., et al., No. 98-CV-2855, in the U.S. District Court for the District of New Jersey, Camden Division.

RESPONSE:

Ford objects to this Request on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks the production of documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 42

Please produce all expert reports prepared for any party in State Farm Mutual et al. v. Ford Motor Co., et al., No. 98-CV-2855, in the U.S. District Court for the District of New Jersey, Camden Division.

RESPONSE:

Ford objects to this Request on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks the production of documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 43

Please produce all written discovery requests and all written discovery responses by any party to *State Farm Mutual et al. v. Ford Motor Co., et al.*, No. 98-CV-2855, in the U.S. District Court for the District of New Jersey, Camden Division.

RESPONSE:

Ford objects to this Request on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks the production of documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 44

Please produce all documents describing or discussing the VIN numbering system for 1992-1993 Panther Platform vehicles, including documents describing or discussing how to "read" information encoded in VINs.

RESPONSE:

Without waiving the objections stated below, Ford refers Co-defendant to the following documents that have previously been produced:

Section 00-01-1 through 00-01-15 of the 1992 and 1993 Lincoln Town Car, Crown Victoria and Grand Marquis Service Manual which describes how to interpret the Vehicle Identification Number.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible.

REQUEST FOR PRODUCTION NO. 45

Please produce service bulletins TSB 99-6-3, 93101, and 98-5A-4.

RESPONSE:

Without waiving the objection stated below, Ford refers Co-defendant to the following documents that have previously been produced:

- Technical Service Bulletin 99-6-3;
- Technical Service Bulletin 93-10-1; and
- Technical Service Bulletin 98-5A-4.

Ford objects to this Request on the grounds it seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible.

REQUEST FOR PRODUCTION NO. 46

Please produce all documents sent by Ford to Ford dealerships related to the subject recall.

RESPONSE:

Without waiving the objections stated below, Ford refers Texas Instruments to Recall 99S15 regarding the speed control deactivation switch installed on certain 1992 and 1993 Crown Victoria, Grand Marquis, and Lincoln Town Car vehicles previously produced.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 47

Please produce all documents describing or discussing the number or percentage of 1992-

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1993 Panther Platform vehicles that have or have not received the service described by the notice of the subject recall.

RESPONSE:

Without waiving the objections stated below, Ford will produce the Campaign Status Information sheet applicable to Recall 99S15.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 48

Please produce all documents related to fires in 1992-1993 Panther Platform vehicles.

RESPONSE:

Ford objects to this request on the grounds it: (a) is overly broad, (b) is unduly burdensome and (c) seeks documents which are not reasonably calculated to lead to the discovery of admissible evidence. Subject to the foregoing objections, Ford refers Texas Instruments to its responses to the previous and following Requests for Production.

REQUEST FOR PRODUCTION NO. 49

Please produce any documents containing, referencing, or referring to any analysis or discussion of the locations of fires involving 1992-1993 Panther Platform vehicles.

RESPONSE:

Without waiving the objections stated below, Ford refers Texas Instruments to the Bates labeled document 3713 0913. Additionally, Ford refers Texas Instruments to the lawsuit and claims files previously produced. These files may discuss the location of fires involving 1992 and 1993 Panther Platform vehicles. Ford is not aware of any other

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documents responsive to this Request.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, (c) vague and ambiguous, and (d) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 50

Please produce all documents related to tests of any kind performed on switches returned as a result of the subject recall.

RESPONSE:

Without waiving the objections stated below, Ford states that documents responsive to this Request have previously been produced. Additionally, Ford will supplement its response to this request by producing additional responsive documents no later than thirty (30) days from the service of this pleading.

To the extent this Request seeks documents other than those above, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence. Ford also objects to this request on the grounds that it seeks documents protected by the attorney-client privilege, consulting expert's privilege and attorney work product doctrine.

REQUEST FOR PRODUCTION NO. 51

Please produce all documents describing or discussing tests in which switches returned as a result of the subject recall were cycled to failure, including documents giving the date code on such switches and the build date and mileages for the vehicles on which those switches had been installed.

RESPONSE:

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JAMES J.

Based on information and belief, it is Ford's position that the type of testing identified above was performed by Texas Instruments. Accordingly, Ford refers Texas Instruments to its own documents responsive to this Request. Ford also incorporates its objections and response to Request for Production No. 50.

To the extent this Request seeks documents other than those above, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence. Ford also objects to this request on the grounds that it seeks documents protected by the attorney-client privilege, consulting expert's privilege and attorney work product doctrine.

REQUEST FOR PRODUCTION NO. 52

Please produce all documents describing or discussing any chemical analysis related to switches returned as a result of the subject recall.

RESPONSE:

Ford states that documents responsive to this Request have previously been produced.

To the extent this Request seeks documents other than those above, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence. Ford also objects to this request on the grounds that it seeks documents protected by the attorney-client privilege, consulting expert's privilege and attorney work product doctrine.

REQUEST FOR PRODUCTION NO. 53

Please produce all documents describing or discussing any 1992-1993 Panther Platform vehicle which has been subject to a fire.

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RESPONSE:

Ford has previously provided forty (40) boxes of non-privileged lawsuits and claims documents regarding Panther Platform vehicles which contain an allegation of a fire originating from under the hood. These documents contain information responsive to this Request. Ford also refers Texas Instruments to its responses to the previous and following requests for production.

Ford objects to this Request to the extent it (a) is overly broad, (b) is unduly burdensome and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence. Ford also objects to this request on the grounds that it seeks documents protected by the attorney-client privilege, consulting expert's privilege and attorney work product doctrine.

REQUEST FOR PRODUCTION NO. 54.

Please produce all documents describing or discussing switches returned as a result of the subject recall, including documents concerning switches with melted bases or with out-of-specification leakage current from either terminal to hexport ground, and all documents giving the switch data code, vehicle build date, or vehicle mileage related to the switches with melted bases or with out-of-specification leakage current from either terminal to hexport ground.

RESPONSE:

Ford states that documents responsive to this Request have previously been produced. Ford also incorporates its objections and responses to Request for Production Nos. 4, and 20 through 23.

To the extent this Request seeks documents other than those above, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to

the discovery of admissible evidence. Ford also objects to this request on the grounds that it seeks documents protected by the attorney-client privilege and attorney work product doctrine.

REQUEST FOR PRODUCTION NO. 55

All documents describing, discussing, or related to the specifications for the brake pedal switch, proportional valve, master cylinder, brake hoses, brake pedal switch, brake booster, brake caliper, ABS system, or the traction-control system on the 1992-1993 Panther Platform vehicles, and any documents describing, discussing, or related to the specifications for any component part of the ABS system or traction-control system on the 1992-1993 Panther Platform vehicles.

RESPONSE:

Without waiving the objections stated below, Ford refers Co-defendant to the assembly drawing and engineering specifications for the following components installed on the 1992 and 1993 Panther Platform vehicles that were previously produced:

- the brake pedal switch;
- the proportional valve;
- the brake hoses;
- the brake lines;
- the brake calipers;
- the master cylinder;
- the brake booster;
- the ABS system;
- the traction control system;
- the component parts of the ABS system; and
- the component parts of the traction control system.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 56

All FMEAs, PFMEAs, DFMEAs, design guidelines, dimensional control plans, and system design specifications for the 1992 Lincoln Town Car, 1992 Crown Victorias, 1992

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Mercury Grand Marquis, 1993 Lincoln Town Car, 1993 Crown Victorias, 1993 Mercury Grand Marquis, and the cruise-control and brake systems for any 1992-1993 Panther Platform vehicles.

RESPONSE:

After a reasonable and duly diligent search, Ford states that the Failure Mode and Effects Analysis ("FMEA") for the speed control system for the 1992 and 1993 model year Panther Platform vehicles has not been located. In a spirit of cooperation, Ford refers Texas Instruments to the Failure Mode and Effects Analysis for the automatic vehicle speed control sub-system, revision 1997.10.10 that was previously produced.

Ford objects to producing the additional documents sought by this request on the grounds it : (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 37

All documents related to development of the cruise-control system for 1992-1993 Panther Platform vehicles, including but not limited to documents referring to, related to, mentioning, or located in the files of Bruce Pease, Bruce Macroff, or John Pelkey.

RESPONSE:

Without waiving the objections stated below, Ford states that John Pelkey no longer works for Ford. In addition, Ford states that it has contacted Bruce Pease and Bruce Macroff and they have no documents responsive to this Request. However, in the spirit of cooperation, Ford will refer Co-defendant to the following documents that have previously been produced:

- relevant pages of the Electrical Vacuum Troubleshooting Manual depicting the speed control system installed on the 1993 Lincoln Town Car vehicle;
- engineering specification for the Servo Assembly - Speed Control installed on the 1992

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and 1993 Panther Platform vehicles;

- engineering drawing depicting the Servo Assembly - Speed Control installed on the 1992 and 1993 Panther Platform vehicles;

- engineering specification for the Speed Control Assembly installed on the 1992 and 1993 Panther Platform vehicles;

- engineering drawing depicting the Speed Control Assembly installed on 1992 and 1993 Panther Platform vehicles;

- engineering specification for the Amplifier Assembly - Speed Control installed on 1992 and 1993 Panther Platform vehicles; and

- engineering drawing depicting the Amplifier Assembly - Speed Control installed on 1992 and 1993 Panther Platform vehicles.

Additionally, Gary Klinger is an individual knowledgeable regarding the development of the cruise control system for 1992 and 1993 Panther Platform vehicles.

To the extent this Request seeks a different or additional response, Ford objects on the grounds that it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 53

All correspondence between Ford and Hillis Industries concerning the proportional valve installed on 1992-1993 Panther Platform vehicles.

RESPONSE:

Ford states that all documents responsive to this Request were produced in response to Request for Production No. 3.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 56

All drawings, design requirements, specifications, and other documents describing the subject connector.

RESPONSE:

Without waiving the objections stated below, Ford refers Co-defendant to the following documents that have previously been produced:

- the assembly drawing for the subject connector installed on 1992 and 1993 Panther Platform vehicles;

- the component drawings for the subject connector installed on 1992 and 1993 Panther Platform vehicles;

- the engineering specifications for the environmental testing for the subject connector installed on 1992 and 1993 Panther Platform vehicles; and

- the product change requests called out on the component drawings for the subject connector installed on 1992 and 1993 Panther Platform vehicles.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 60

All drawings, design requirements, specifications, and other documents describing any wiring that is connected with the subject connector.

RESPONSE:

ALL INFORMATION CONTAINED
HEREIN IS UNCLASSIFIED

Ford states that documents responsive to this Request have previously been produced. Ford also incorporates its objections and response to Request for Production No. 59.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 61

All documents referring or related to testing of the subject connector, its component parts, and any wiring that is connected with the subject connector.

RESPONSE:

Ford states that documents responsive to this Request have previously been produced. Ford also incorporates its objections and responses to Request for Production Nos. 59 and 60.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 62

All documents authored by, mentioning, or in the files of Norm LaPointe, and which reference the subject switch, the subject connector, the subject recall, fires in Ford vehicles, or any other issues related in any way to this litigation.

RESPONSE:

Without waiving the objections stated below, Ford has previously produced the file of

██████████ regarding the subject speed control deactivation switch. In the event ██████████

██████████ acquires or generates additional documents, Ford will supplement this response.

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To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents protected from disclosure by the attorney work-product doctrine and/or the consulting expert privilege.

REQUEST FOR PRODUCTION NO. 63

Produce all Quarterly Status Reports (as required by 49 C.F.R. Part 573.6) associated with the subject recall.

RESPONSE:

Without waiving the objections stated below, has previously produced Quarterly Status Reports for July 30, 1999, October 30, 1999 and January 31, 2000. Ford will produce the Quarterly Status Report for July 30, 2000.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 64

Provide all of the following technical control documents applicable to the engineering program(s) culminating in the introduction of each 1.5/1.6 SCS and/or each 1.1/1.2 SCDS or 1.3/1.4 connector associated therewith:

- a. All White Papers and all Engineering Letters.
- b. Complete Program Description Book (final form).
- c. Product Acceptance Specifications 10.03 and any other acceptance or performance specifications applicable in whole or in part to SCS and/or SCDS and/or SCDS wiring harness connector.
- d. Engineering Design Standards/Requirements 10.03 and any other design requirements applicable in whole or in part to SCS and/or SCDS and/or SCDS wiring harness connector.

e. Engineering Test Standards 10.03 and any other test requirements applicable in whole or in part to SCS and/or SCDS and/or SCDS wiring harness connector.

f. Failure mode and effect analysis (FMEA) protocols applicable to SCS and/or SCDS and/or SCDS wiring harness connector.

g. Design verification (DVP & R) protocols applicable to SCS and/or SCDS and/or SCDS wiring harness connector.

h. Production validation (PV) protocols applicable to SCS and/or SCDS and/or SCDS wiring harness connector.

i. Development, pre-production, and post-production vehicle performance/reliability/durability test protocols applicable in whole or in part to SCS and/or SCDS and/or SCDS wiring harness connector.

RESPONSE:

Ford objects to this Request to the extent it seeks documents other than those regarding 1992 and 1993 Panther Platform vehicles. Without waiving this objection or the objections stated below, Ford responds to the sub-parts as follows:

a. Ford states it has previously produced the white paper regarding Ford's investigation of under hood fires of Panther Platform vehicles.

b. Ford objects to this Request on the grounds it: (a) is overly broad, and (b) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence. Further, Ford does not recognize the phrase "Complete Program Description Book" as applied to the 1992 and 1993 Panther Platform vehicles.

c. Ford states that it has previously produced the engineering specifications for the speed control servo, speed control deactivation switch and anti-lock brake system installed on 1992 and 1993 Panther Platform vehicles. To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

d. Ford states that it has previously produced the engineering specifications for the speed control servo, speed control deactivation switch and anti-lock brake system installed on 1992 and 1993 Panther Platform vehicles. To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly

burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

e. Ford states that it has previously produced the engineering specifications for the speed control servo, speed control deactivation switch and anti-lock brake system installed on 1992 and 1993 Panther Platform vehicles. To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

f. Ford states that Texas Instruments, as designer, manufacturer, and supplier of these components, was previously provided with documents responsive to this Request in the normal course of business. As a QI supplier, Texas Instruments certifies to Ford that it is familiar with and understands the protocol in this Request. To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

g. Ford states that Texas Instruments, as designer, manufacturer, and supplier of these components, was previously provided with documents responsive to this Request in the normal course of business. As a QI supplier, Texas Instruments certifies to Ford that it is familiar with and understands the protocol in this Request. To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

h. Ford states that Texas Instruments, as designer, manufacturer, and supplier of these components, was previously provided with documents responsive to this Request in the normal course of business. As a QI supplier, Texas Instruments certifies to Ford that it is familiar with and understands the protocol in this Request. To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

i. Ford objects to this Request on the grounds it seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 65

Provide all records of proposal, specification, analysis, design (including but not limited to each layout drawing, electrical or electronic schematic, assembly drawing, detail drawing or specification, bill of materials, ES document, manufacturing instruction document, inspection instruction document and other engineering, manufacturing, or inspection specification document).

development, engineering test, review, and approval for each 1.5/1.6 SCS and/or each 1.1/1.2 SCDS and/or each 1.3/1.4 connector associated therewith.

- a. Provide all such records leading to the requirements of ES-F2VC-9F924-AA.
- b. Provide all such records leading to the requirements of ES-F2VC-9F924-AA III B.
- c. Provide all such records leading to the requirements of ES-F2VC-9F924-AA III E.
- d. Provide all such records leading to the requirements of ES-F2VD-9F924-AA III F.
- e. Provide all such records leading to the requirements of ES-F2VC-9F924-AA III G.
- f. Provide all such records leading to the requirements of ES-F2VC-9F924-AA III H.
- g. Provide all such records leading to the requirements of each ES applicable to each 1.3/1.4 connector.

RESPONSE:

Without waiving the objections stated below, Ford states that documents responsive to this Request have previously been produced.

To the extent this Request seeks a different, additional or further response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome and not reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 66

Provide all of the following technical control documents applicable to the engineering program(s) culminating in the introduction of each 1.7/1.8 ABS/system component:

- a. All White Papers and all Engineering Letters.
- b. Complete Program Description Book (final form).
- c. Product Acceptance Specifications 6.09 and any other acceptance or performance specifications applicable in whole or in part to each ABS/system component.
- d. Engineering Design Standards/Requirements 6.09 and any other design requirements applicable in whole or in part to each ABS/system component.

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- e. Engineering Test Standards 6.09 and any other test requirements applicable in whole or in part to each ABS/system component.
- f. Failure mode and effect analysis (FMEA) protocols applicable to each ABS/system component.
- g. Design verification (DVP & R) protocols applicable to each ABS/system component.
- h. Production validation (PV) protocols applicable to each ABS/system component.
- i. Development, pre-production, and post-production vehicle performance/reliability test protocols applicable in whole or in part to each ABS/system component.

RESPONSE:

Ford objects to this Request in its entirety on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 67

Provide all records of proposal, specification, analysis, design (including but not limited to each layout drawing, electrical or electronic schematic, hydraulic schematic, assembly drawing, detail drawing or specification, bill of materials, ES document, manufacturing instruction document, inspection instruction document and other engineering, manufacturing, or inspection specification document), development, engineering test, review, and approval for each 1.7/1.8 ABS/system component.

- a. Provide all such records applicable in whole or in part to any investigation of service brake application frequency and/or severity.
- b. Provide all such records applicable in whole or in part to any investigation of pressure pulsation frequency or amplitude imposed on any 1.1/1.2 SCDS by any 1.7/1.8 ABS (pulsation at connection to proportioning valve or to brake pressure control valve).

RESPONSE:

Without waiving the objections stated below, Ford states it has previously produced to

Texas Instruments various documents related to the anti-lock brake system relevant to the 1992 and 1993 Panther Platform vehicles.

Subject to the above statement and objections and without waiving the objections stated below, Ford responds to the sub-parts as follows:

a. Ford has previously produced the Brake Application Frequency study regarding 1992 and 1993 Crown Victoria vehicles. To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

b. Ford has previously produced the 1992 Lincoln Town Car Pressure Test data. To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 68

Please produce all documents related to Ford's decision to request development of the 77PS line of switches, including documents related to any problems, safety issues, or other concerns pertaining to the speed control deactivation systems used by Ford before the development of the 77PS line of switches.

RESPONSE:

Ford refers Texas Instruments to all documents previously produced by Texas Instruments. Any documents in Ford's possession have been produced in response to previous discovery.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 69

Produce the design specifications for the cruise control system on model year 2000 Lincoln Town Car.

RESPONSE:

Ford states the 2000 model year Lincoln Town Car does not have a brake pressure actuated speed control deactivation switch. Accordingly, Ford objects to this Request on the grounds it seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 70

Produce any documents related to the development of the TIPS line of switches.

RESPONSE:

Ford refers Texas Instruments to all documents previously produced by Texas Instruments. In addition, Ford states that documents in Ford's possession have been produced in response to previous discovery.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

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REQUEST FOR PRODUCTION NO. 71

Produce any documents related to the determination of how much electrical load any 77PS switch can or should carry.

RESPONSE:

Ford states that the "Highlights" produced by Texas Instruments contain documents responsive to this Request. After a reasonable and duly diligent search, Ford has determined, that due to the passage of time, documents responsive to this Request have not been retained in accordance with applicable record retention policies.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 72

Produce any document related to Ford's decision to provide a 15 amp fuse in line with the 77PSL2-1 switch or any other speed control deactivation switch.

RESPONSE:

After a reasonable and duly diligent search, Ford has determined, that due to the passage of time, documents responsive to this Request have not been retained in accordance with applicable record retention policies.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 73

Please provide the complete specifications for the brake pedal deactivation switch in every model vehicle in which a 77PS switch was installed.

RESPONSE:

Ford states that it does not recognize the phrase "brake pedal deactivation switch" and objects to this Request as being (a) undefined, and (b) vague and ambiguous.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 74

Please produce all documents related to the development of the cycle life specification for the brake pedal deactivation switch in any model of vehicle in which a 77PS switch was installed.

RESPONSE:

Ford states that it does not recognize the phrase "brake pedal deactivation switch" and objects to this Request as being (a) undefined, and (b) vague and ambiguous.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 75

Produce all documents related to any Ford recommendation that brake fluid should be changed periodically in any vehicle on which a 77PS switch was installed.

RESPONSE:

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Without waiving the objections stated below, Ford refers Co-defendant to the relevant portions of the Owner Guide and Maintenance Schedule Log for the 1992 Lincoln Town Car, Grand Marquis, and Crown Victoria vehicles containing recommendations for the maintenance of the brake fluid that have previously been produced.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 76

For every model vehicle in which Ford has installed a TIPS switch, please produce all documents referring or relating to the polarity on the switch.

RESPONSE:

Without waiving the objections stated below, Ford states that the polarity on the switch and changes made to the polarity of the switch were the responsibility of Texas Instruments. In addition, Ford states that the polarity on the vehicle is specified by the wiring harness drawing and the switch drawing. Also, Ford states the wiring harness, connector drawing and switch drawing were required to meet specifications. Ford further states that the connector and the integral switch connector are each keyed to ensure they are assembled only one way.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad; (b) is unduly burdensome; (c) is vague and ambiguous, for example in its use of the phrase "polarity of the switch"; and (d) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

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REQUEST FOR PRODUCTION NO. 77

Produce all documents related to Ford's decision to apply continuous power to any 77PS switch.

RESPONSE:

Based on information and belief, Ford states that pursuant to record retention policies, documents responsive to this request are no longer available. However, Ford states that Gary Klingler is an individual who is knowledgeable about the subject matter of this request as it relates to the speed control system.

To the extent this Request seeks documents other than those above, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 78

Please provide the cruise control system design specifications for the 1987 Ford Thunderbird vehicle.

RESPONSE:

Ford objects to this Request on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 79

Please provide all documents related to competitive benchmarking by Ford pertaining to the architecture for its speed control system.

RESPONSE:

Attached hereto are documents relating to the speed control system.

To the extent this Request seeks documents other than those above, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 80

Please provide a system FMEA for the brake system, cruise control system, or electrical distribution system, for any and all 1992 and 1993 Panther Platform vehicles.

RESPONSE:

After a reasonable and duly diligent search, Ford states that the Failure Mode and Effects Analysis ("FMEA") for the speed control system for the 1992 and 1993 model year Panther Platform vehicles has not been located. In a spirit of cooperation, Ford refers Texas Instruments to the Failure Mode and Effects Analysis for the automatic vehicle speed control sub-system, revision 1997.10.10 that has previously been produced.

Ford objects to producing the FMEA for the brake system and electrical distribution system on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 81

Please provide a subsystem design specification for the cruise control system, brake system, and electrical distribution system for any and all 1992 and 1993 Panther Platform vehicles.

RESPONSE:

After a reasonable and duly diligent search, Ford states that the subsystem design specification for the speed control system for the 1992 and 1993 model year Panther Platform

vehicles has not been located.

Ford objects to producing the subsystem design specification for the brake system and electrical distribution system on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 82

Please provide all records related to vehicle validation of speed control deactivation switches for all Ford vehicles since 1985.

RESPONSE:

Without waiving the objections stated below, Ford states that prior to assembly of the subject vehicle, Ford states that it conducted hundreds of durability tests that were designed to evaluate the performance of the entire vehicle and its component parts. Durability and reliability tests are conducted on various road surfaces, such as highways, hills, steep grades, rolling terrains, dirt and gravel, etc. Durability testing also involves various speed levels and driving conditions more severe than average customer usage. The speed control system is just one area that is generally evaluated as the entire vehicle is tested for durability. Further, Ford states that in so much as Ford did not manufacture the speed control deactivation switch installed on 1992 and 1993 Panther Platform vehicles, Ford would not have performed testing on the speed control deactivation switch as an individual component. Ford states that the component durability and component requirements are called out on the engineering specifications for the speed control deactivation switch installed on 1992 and 1993 Panther Platform vehicles that manufacturers must meet at the time of the original manufacture.

Finally, Ford states that the subject vehicle met or exceeded the applicable government

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PAGE 12

and industry standards at the time of its production. Please refer to the vehicle certification label affixed to the driver's door of the vehicle.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence, and (d) seeks documents that are not in the possession, custody or control of Ford.

REQUEST FOR PRODUCTION NO. 83

Please provide all documents related to Ford's consideration of where to install the subject switch within 1992 and 1993 Panther Platform vehicle, and how the switch would be positioned within those vehicles.

RESPONSE:

After a reasonable and duly diligent search, Ford has been unable to locate any documents responsive to this Request.

REQUEST FOR PRODUCTION NO. 84

Please provide all documents relating to warranty performance information pertaining to the speed control deactivation switch for every Ford model vehicle since 1985.

RESPONSE:

Without waiving the objections stated below, Ford states that the documents previously produced to Co-defendant pursuant to various and numerous discovery requests are responsive to this Request. Ford also incorporates its objections and response to Request for Production No. 82.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are

neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 85

Please produce all documents related to driver profiles for braking on the 1992 and 1993 Panther Platform vehicles or any other Ford vehicles since 1990.

RESPONSE:

Without waiving the objections stated below, Ford refers Co-defendant to the 1992 Lincoln Town Car Proactive Test data that has previously been produced.

To the extent this Request seeks a different or additional response, Ford objects on the grounds its (a) is overly broad; (b) is unduly burdensome; (c) vague and ambiguous, for example in its use of the phrase "driver profiles"; and (d) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 86

Please produce all documents referring or relating to the issue of whether the subject switch is subject to dithering pressure to the braking system.

RESPONSE:

Ford objects to Texas Instruments use of the term "dithering" as vague, ambiguous and undefined. If Texas Instruments will clarify its Request, Ford will attempt to respond at that time.

REQUEST FOR PRODUCTION NO. 87

Produce any field review committee minutes related to the possibility of under-the-hood fires in 1992 and 1993 Panther Platform vehicles.

RESPONSE:

Ford states that documents responsive to this Request have previously been produced.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 88

Produce any core team meeting minutes related to the possibility of under-the-hood fires in 1992 and 1993 Panther Platform vehicles.

RESPONSE:

Ford states that documents responsive to this Request have previously been produced.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 89

Produce any technical review meeting minutes related to the possibility of under-the-hood fires in 1992 and 1993 Panther Platform vehicles.

RESPONSE:

Ford states that documents responsive to this Request have previously been produced.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 90

Please provide the work calendars for Steve Reimers, Fred Porter, Steve LaRouche, Norm LaPointe, Bill Abramczyk, and Mark Hoffman since October 1, 1998.

RESPONSE:

Ford refers Co-defendant to the work calendars for Steve Reimer, Fred Porter, Steve LaRouche, Norm LaPointe, Bill Abramczyk and Mark Hoffman that have been kept in the normal course of business since October 1, 1998 that have previously been produced.

Ford objects to this Request on the grounds it seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible.

REQUEST FOR PRODUCTION NO. 91

Please provide the engineering specification for the master cylinder on the 1992 and 1993 Panther Platform vehicles.

RESPONSE:

Ford states that the documents responsive to this Request have previously been produced.

REQUEST FOR PRODUCTION NO. 92

Please provide the engineering specification for the brake calipers on the 1992 and 1993 Panther Platform vehicles.

RESPONSE:

Ford states that the documents responsive to this Request have previously been produced.

REQUEST FOR PRODUCTION NO. 93

Please provide the engineering specification for the hydraulic brake tubing on the 1992 and 1993 Panther Platform vehicles.

RESPONSE:

Ford states that the documents responsive to this Request have previously been produced.

REQUEST FOR PRODUCTION NO. 94

Please produce all documents referring or relating to the six sigma limit for pressure present at the subject switch during a traction control event.

RESPONSE:

Ford objects to this Request on the grounds it is vague and ambiguous in that the term "six sigma" is undefined. Without waiving this objection and in a spirit of cooperation, Ford states that standard deviations are used to make inferences based on normal distribution of data. This does not apply to traction control events. This data is believed to be collected by the system supplier.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 95

Please produce all documents referring or relating to the six sigma limit for pressure present at the subject switch during an ABS event.

RESPONSE:

Ford objects to this Request on the grounds it is vague and ambiguous in that the term "six sigma" is undefined. Without waiving this objection and in the spirit of cooperation, Ford states that standard deviations are used to make inferences based on a normal distribution of data. This does not apply to ABS events. The pressure present within the brake system will

depend on such variables as road surface conditions, component conditions and customer usage. This data is believed to be collected by the system supplier.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 96

Please produce all documents relating to the electrical rating of the subject connector.

RESPONSE:

Ford objects to this Request on the grounds it is vague and ambiguous in that the "subject connector" by itself has no electrical rating. Without waiving this objection and in the spirit of cooperation, Ford states that the female terminals of the "subject connector" mated to the male blades of the switch will have an electrical rating which the switch supplier should have verified upon initial release. Ford further states that the female terminal in question passed 16 Amp current cycle testing per ES-FOEB-14474-AA in 1991.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 97

Please produce all documents related to validation testing on the subject connector.

RESPONSE:

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Ford states that the documents responsive to this Request have previously been produced.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, (c) is vague and ambiguous, and (d) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 98

Please produce all documents related to the inspection of the subject connector system associated with any 77PS switch on any Ford vehicle.

RESPONSE:

Without waiving the objections stated below, Ford states that Texas Instruments had the responsibility to inspect the subject connector system based on the requirement on the drawing of the switch, previously produced. Ford also refers to Texas Instruments to other documents in its possession.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, (c) is vague and ambiguous, and (d) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 99

Please provide the ISIS for the subject connectors.

RESPONSE:

Ford objects to this Request on the grounds it does not recognize the term "ISIS". Ford will respond to this Request on the basis Texas Instruments is referring to the "ISIR."

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Ford states after a reasonable and duly diligent search, Ford is unable to locate the ISIR related to the subject connector. Ford further states that any records regarding the ISIR for the subject connector should be in the possession of the connector supplier, while the mating switch connector ISIR should be in the possession of Texas Instruments.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is unduly burdensome, and (b) seeks documents that are not in the possession, custody or control of Ford.

REQUEST FOR PRODUCTION NO. 100

Please produce all documents referring or relating to the six sigma limit for the vacuum used to bleed and fill the brake system on the 1992 and 1993 Panther Platform vehicles.

RESPONSE:

Ford objects to this Request on the grounds that it is vague and ambiguous in that the term "six sigma" and "bleed and fill" are undefined. Without waiving its objection and in a spirit of cooperation, Ford states that the evacuate and fill machines were configured to evacuate each brake system to below 8mbar absolute pressure. Vacuum was measured by a transducer mounted in a remote console.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

REQUEST FOR PRODUCTION NO. 101

Please produce all documents referring or relating to controls on the vacuum used to bleed and fill the brake system on the 1992 and 1993 Panther Platform vehicles.

RESPONSE:

Ford refers to and incorporates its response and objections to Request No. 100, as if fully set forth herein.

REQUEST FOR PRODUCTION NO. 102

Please produce all documents related to preventative maintenance procedures employed by Ford for the brake and seal system in the 1992 and 1993 Panther Platform vehicles.

RESPONSE:

Without waiving the objections stated below, Ford refers Texas Instruments to documents produced in response to Request for Production No. 75. In addition, Ford states preventative maintenance is the responsibility of the owner.

To the extent this Request seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

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STATE OF MICHIGAN)
) ss.
COUNTY OF WAYNE)

GARY SMITH

being duly sworn, deposes and says that the deponent is an authorized agent of Ford Motor Company, and that the deponent verifies the foregoing Response to Defendant Texas Instruments Inc.'s Request for Production of Documents for and on behalf of Ford Motor Company and is duly authorized so to do; that the matters stated therein are not within the personal knowledge of the deponent; that the facts stated therein have been assembled by authorized employees and counsel of Ford Motor Company, and the deponent is informed that the facts stated therein are true.

Gary A. Smith

Subscribed and sworn to before me this

30 day of October 2000

Deandra Kirkwood

DEANDRA KIRKWOOD
Notary Public, Wayne County, Michigan
Acting in Wayne County
My Commission Expires 03/03/2005



IN THE CIRCUIT COURT OF JACKSON COUNTY, MISSISSIPPI

QUIDA CAMPBELL and JAMES R. CAMPBELL

PLAINTIFFS

VERSUS

FORD MOTOR COMPANY, D&L, INC. OF
COLLENS I/k/a D&L, FORD, INC., WOOLWINE
FORD LINCOLN-MERCURY, INC., Successor in
Interest to D&L FORD, INC., E.I. DU PONT DE
NEMOURS AND COMPANY, AND TEXAS
INSTRUMENTS INCORPORATED

CASE NO. CI-99-0211(3)

DEFENDANTS

FORD MOTOR COMPANY'S OBJECTIONS AND ANSWERS TO
DEFENDANT TEXAS INSTRUMENTS INC.'S INTERROGATORIES

Now comes the Defendant, Ford Motor Company ("Ford"), as it submits its Objections
and Answers to Defendant Texas Instruments Inc.'s Interrogatories.

Respectfully submitted,

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3/8/87

And

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By:


Jeffrey C. Menske
Texas State Bar No. 12956420

ATTORNEYS FOR DEFENDANT
FORD MOTOR COMPANY

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CERTIFICATE OF SERVICE

This is to certify that a true and correct copy of the above and foregoing has been forwarded to the following counsel of records on this 4th day of November, 2000, as follows:

Via Certified Mail - Return Receipt
Requested
and Via Overnight

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Johnny W. Carter
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Jeffrey J. Manske

PRELIMINARY STATEMENT AND GENERAL OBJECTIONS

This action arises out of an incident allegedly involving a 1992 Lincoln Town Car vehicle identified by Vehicle Identification Number ("VIN") 1LNLM81W7NY [REDACTED]. Ford has not completed its investigation of the facts relating to this litigation. Consequently, Ford's responses to Co-Defendant's Interrogatories reflect all of the responsive information identified by Ford before the date of these responses, pursuant to a reasonable and duly diligent search conducted in connection with this discovery in those areas where such information is expected to be found. To the extent that the Interrogatories purport to require more, Ford objects on the grounds that: (a) the Interrogatories seek to compel Ford to conduct a search beyond the scope of permissible discovery contemplated by the applicable rules of evidence and procedure, and (b) compliance with the Interrogatories would impose an undue burden and expense on Ford. The following answers are given without prejudice to Ford's right to produce evidence of any subsequently discovered facts. Ford also reserves the right to assert additional privileges if warranted by new documents or evidence discovered at a later date.

Lastly, Ford does not concede that any of its answers are or will be admissible evidence at trial nor does Ford waive any objection, whether or not asserted herein, to the use of any such response at trial.

OBJECTIONS APPLICABLE TO MORE THAN ONE INTERROGATORY

Ford objects to Co-defendant's use of the terms or phrases "each," "every," and/or "each and every" on the grounds these terms and phrases are: (a) overly broad, (b) unduly burdensome, (c) vague and ambiguous, and (d) seek information and/or documents that are neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence. Ford incorporates this objection into any Interrogatory propounded by Co-defendant which uses the terms or phrases "each," "every," and/or "each and every."

In addition, for each Interrogatory that references 1.1 SCSC, SCS and ABS, Ford objects on the grounds that it: (a) is vague and ambiguous, and (b) is undefined and requires Ford to speculate as to Texas Instruments' intended meaning. Ford will respond to such request on the basis they are seeking information regarding the 1992 and 1993 Panther Platform vehicles.

Finally, Ford objects to Co-defendant's definitions to the extent they purport to require Ford to take action or provide information beyond the requirements of the Mississippi Rules of Civil Procedure. Ford will comply with the requirements of such rules. In addition, to the extent Co-defendant ascribes special meanings or definitions to words used in this set of discovery, Ford objects to the specialized meanings and definitions and interprets all words contained in this set of discovery in accordance with their ordinary and customary meanings.

RESPONSES TO INDIVIDUAL INTERROGATORIES

Subject to the foregoing statements and objections, Ford responds to each individual Interrogatory as follows:

INTERROGATORY NO. 1

Does Ford Motor Company allege that Texas Instruments has breached a contract to indemnify Ford? If so, please describe the subject contract in detail. The description should include, but not be limited to, the names of the contract signatories, the date(s) on which the

ADDENDUMS:
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contract was signed, and the title of the contract.

ANSWER:

Yes; Ford contends that Texas Instruments has breached a contract to indemnify Ford. The documents responsive to this Interrogatory which support Ford's contention include the following previously produced documents:

1. Request for Quotation;
2. 1993 supplier contract;
3. sketchy drawing for the 1993 model year Lincoln Town Car brake pressure switch; and
4. engineering specification no. ES-F2VC-9F924-AA.

To the extent this Interrogatory seeks documents or information other than identified above, Ford objects on the ground that it is overly broad and unduly burdensome.

INTERROGATORY NO. 2

Please give the build date for the vehicle with VIN number 1LNLM8ZW5NY640551, which is subject of this lawsuit, and the date code for the subject switch installed on the subject vehicle.

ANSWER:

Without waiving the objections stated below, Ford states the subject vehicle was finally assembled on or about June 5, 1992, at its Wixom Assembly Plant located in Wixom, Michigan. Ford also states the date code of the subject switch is currently unknown.

Ford objects to this Interrogatory on the grounds it seeks information that is neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

AUG-12-2000
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INTERROGATORY NO. 3

Provide the following information with respect to each speed control deactivation switch (SCDS) used by Ford in conjunction with any speed control servo (SCS) and used with or without any anti-lock brake system (ABS) since model year (MY) 1991:

- a. Identify the complete part number specific as to design level (Ford and manufacturer) and build date code format.
- b. Identify each design or manufacturing modification of each 1.1 SCDS as approved by Ford, with date and specific description thereof.
- c. Identify each SCDS wiring harness connector associated with each 1.1/1.2 SCDS, including complete part number specific as to design level (Ford and manufacturer) and build date code format.
- d. Identify, each design or manufacturing modification of each 1.3 connector as approved by Ford, with date and specific description thereof.
- e. Identify each SCS associated with each 1.1/1.2 SCDS and each 1.3/1.4 connector including complete part number specific as to design level (Ford and manufacturer) and build date code format.
- f. Identify, each design or manufacturing modification of each 1.5 SCS as approved by Ford, with date and specific description thereof.
- g. Identify each ABS associated with each 1.1/1.2 SCDS and each 1.3/1.4 connector, giving a description and complete part number, including each system component complete part number specific as to design level (Ford and manufacturer) and build date code format.
- h. Identify each design or manufacturing modification of each 1.7 ABS/system component as approved by Ford, with date and specific description thereof.
- i. Identify, each Ford vehicle model by model year in which each 1.1/1.2 SCDS, each 1.3/1.4 connector, and each 1.5/1.6 SCS combination has been used without ABS.
- j. Identify each Ford vehicle model by model year in which each 1.1/1.2 SCDS, each 1.3/1.4 connector, each 1.5/1.6 SCS, and each 1.7/1.8 ABS combination has been used.
- k. Identify the number of vehicles of each model manufactured in each model year for each 1.9 combination.

- I. Identify the number of vehicles of each model manufactured in each model year for each 1.10 combination.

ANSWER:

Ford identifies 1992 and 1993 model year Lincoln Town Car, Crown Victoria, Grand Marquis, Econoline, Club Wagon vehicles, certain 1993 model year F-Series, Bronco, Taurus SHO and Mark VIII vehicles as having a similar brake pressure switch as those installed on the subject Lincoln Town Car.

Differences between the brake pressure switch in the Lincoln Town Car and the vehicles identified above include differences in actuation calibration, release pressure, hexport style, position tab to locate connector, color (and possibly plastic material composition) of connector base, thread style, snap noise associated with the pressure disc, and terminal orientation/location.

Ford states that the speed control deactivation switch on the Crown Victoria and Grand Marquis is substantially similar to that on the Lincoln Town Car because they are the only vehicles which share the same terminal orientation/location with the Lincoln Town Car for the 1992 and 1993 model years. Additionally, the speed control deactivation switch on the 1992 and 1993 model year Lincoln Town Car, Crown Victoria and Grand Marquis also have the same release pressure, hexport style, thread style and position tab to locate connector. Also, the 1992 and 1993 model year Lincoln Town Car, Crown Victoria and Grand Marquis vehicles share a similar packaging environment in the location of the speed control deactivation switch. This operating environment is substantially different than other vehicle lines and means that the switch in question will experience similar environmental extremes of temperature, vibration, moisture, dirt, etc.

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Subject to the above statement and without waiving the objections stated below, Ford responds to the each of the sub-parts as follows:

- a. Ford identifies the speed control deactivation switch installed on 1992 and 1993 Panther Platform vehicles as Ford Part Number F2VC-9F924-AB and Texas Instruments Part Number 77PSL2-1, which was approved on or about April 17, 1991 through revision "G", as shown on engineering drawing entitled, "Pressure Switch Envelope Drawing" on Texas Instruments Klixon Division drafting paper, which has previously been supplied. The engineering drawing referenced above includes a note, "Stamp date code and Ford P/N on this surface". The date code was not specified. The date code used is four numeric digits long. The first digit represents the year (i.e. a "2" in the first digit location means 1992) and the other three digits represent the day of the year on which the part was produced (i.e. "2001" was manufactured on January 1, 1992, "1062" was manufactured on March 3, 1991, the 62nd day in the year).
- b. Ford has previously provided the engineering drawing for the Speed Control Deactivation Switch installed on 1992 and 1993 Panther Platform vehicles. This drawing will show, among other things the design and engineering changes. As designer, manufacturer and supplier of the subject switch, Texas Instruments should have all design and manufacturing changes. Ford objects to this Interrogatory on the grounds it: (a) is unduly burdensome, and (b) harassing.
- c. Ford has previously produced documents responsive to the subject switch. To the extent this Interrogatory seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks information that is neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.
- d. Ford has previously produced documents containing responsive information to this Interrogatory. To the extent this Interrogatory seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks information that is neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.
- e. Ford has previously produced documents containing responsive information to this Interrogatory. To the extent this Interrogatory seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks information that is neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.
- f. Ford has previously produced a drawing for the Speed Control Servo. This

drawing will show, among other things any design modifications to the components identified on the drawings during the periods shown on the drawings. To the extent this Interrogatory seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks information that is neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

- g. Ford has previously produced documents responsive to the subject brake system. To the extent this Interrogatory seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks information that is neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.
- h. Ford has previously produced a drawing for the Speed Control Servo. This drawing will show, among other things any design modifications to the components identified on the drawings during the periods shown on the drawings. To the extent this Interrogatory seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks information that is neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.
- i. Ford objects to this Interrogatory on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks information that is neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence. However, in the spirit of cooperation, Ford states the 1992 and 1993 Panther Platform vehicles have anti-locks brakes as standard equipment on all vehicles except those with the heavy duty option package for fleet limousine conversion orders.
- j. Ford objects to this Interrogatory on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks information that is neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence. However, in the spirit of cooperation, Ford states the 1992 and 1993 Panther Platform vehicles have anti-locks brakes as standard equipment on all vehicles except those with the heavy duty option package for fleet limousine conversion orders.
- k. Ford objects to this Interrogatory on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks information that is neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.
- l. Ford objects to this Interrogatory on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks information that is neither relevant to the

subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

INTERROGATORY NO. 4

Please identify the number of Panther Platform vehicles, categorized by model, built at each Ford factory on every date that one or more of the following vehicles was built: (1) 1992 Lincoln Town Car, (2) 1992 Crown Victoria, (3) 1992 Mercury Grand Marquis, (4) 1993 Lincoln Town Car, (5) 1993 Crown Victoria, and (6) 1993 Mercury Grand Marquis.

ANSWER:

Ford objects to this Interrogatory on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks information that is neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

INTERROGATORY NO. 5

Please give the number of new-car sales of each of the following vehicles, categorized by state, for each year in which the following vehicles were sold new: (1) 1992 Lincoln Town Car, (2) 1992 Crown Victoria, (3) 1992 Mercury Grand Marquis, (4) 1993 Lincoln Town Car, (5) 1993 Crown Victoria, and (6) 1993 Mercury Grand Marquis.

ANSWER:

Ford objects to this Interrogatory on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks information that is neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

INTERROGATORY NO. 6

For each date of manufacture, model, and factory identified in response to Interrogatory No. 4, and for each year of sale, state, and model identified in response to Interrogatory No. 5, identify the number of vehicles with a cruise-control system, the number of vehicles with an anti-lock braking system, and the number of vehicles with traction control.

ANSWER:

Subject to the forgoing objections, Ford states the 1992 and 1993 Lincoln Town Car vehicle has speed control, antilock brakes and traction assist as standard equipment.

Ford objects to this Interrogatory on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks information that is neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

INTERROGATORY NO. 7

Please identify each switch returned as a result of the subject recall by switch date code, vehicle identification number, vehicle mileage, vehicle build date, and location of dealership where the switch was returned.

ANSWER:

Ford states that subject switches and connectors returned as a result of the subject recall remain available for review and inspection upon reasonable notice and request. Ford objects to producing the same to Texas Instruments or their counsel at their requested place of this production on the grounds that such request is unduly burdensome.

To the extent this Interrogatory seeks information other than identified above, Ford objects on the ground that it is overly broad, unduly burdensome and not reasonably calculated to lead to the discovery of admissible evidence.

INTERROGATORY NO. 8

Provide the following information to the extent known to Ford (exact or best approximation) for each vehicle fire incident attributed by Ford at any confidence level to origin within a 1.1/1.2 SCDS:

- a. Vehicle VIN
- b. Vehicle build date
- c. Incident date

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JACKSON

- d. Incident mileage ,
- e. SCDS complete part number
- f. SCDS build date
- g. SCDS wiring connector complete part number
- h. SCS complete part number
- i. SCS build date
- j. ABS or non-ABS (specify)
- k. ABS description and complete part number
- l. Proportioning valve or brake pressure control valve complete part number
- m. Proportioning valve or brake pressure control valve build date
- n. Basis for attribution of origin

ANSWER:

Without waiving the objections stated below, Ford has previously provided forty (40) boxes of non-privileged lawsuits and claims documents regarding Panther Platform vehicles which contain an allegation of a fire originating from under the hood. These documents contain information responsive to this Interrogatory. Additionally, on October 25, 2000, Jeff Manske, attorney for Ford, forwarded by correspondence to Texas Instruments attorney, Eric Mayer, a list of all pending lawsuits alleging a fire originating in the speed control deactivation switch. Exhibit A to the correspondence referenced above identifies lawsuits by name, jurisdiction, and service date. In addition, Exhibit B to the correspondence referenced above is a partial list of claims which are identified by name and service date.

Ford objects to this Interrogatory on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks information that is neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

INTERROGATORY NO. 9

Please provide a list of every component which is continuously powered on the 1992-1993 Panther Platform vehicles.

ANSWER:

AD0007002.1
1608121

Without waiving its objections, Ford refers Texas Instruments to bates labeled document 3713 1070 and 3713 1093 for information responsive to this Interrogatory.

To the extent this Interrogatory seeks a different or additional response, Ford objects on the grounds it: (a) is overly broad, (b) is unduly burdensome, and (c) seeks information that is neither relevant to the subject matter of this action nor reasonably calculated to lead to the discovery of admissible evidence.

INTERROGATORY NO. 10

Please describe all steps that Ford takes in order to insure that the mating connector has the proper mechanical mating to the subject switch.

ANSWER:

Ford states that the mating connector and the integral switch connector are each keyed to ensure they are assembled in only one unique manner. Ford further states there is an audible click and tactile feel when this connection system is fully mated.

To the extent this Interrogatory seeks information other than identified above, Ford objects on the ground that it is overly broad, unduly burdensome and not reasonably calculated to lead to the discovery of admissible evidence.

STATE OF MICHIGAN)
) ss.
COUNTY OF WAYNE)

GARY SMITH

being duly sworn, deposes and says that the deponent is an authorized agent of Ford Motor Company, and that the deponent verifies the foregoing Response to Defendant Texas Instruments Inc.'s Interrogatories for and on behalf of Ford Motor Company and is duly authorized so to do; that the matters stated therein are not within the personal knowledge of the deponent; that the facts stated therein have been assembled by authorized employees and counsel of Ford Motor Company, and the deponent is informed that the facts stated therein are true.

Gary D. Smith

Subscribed and sworn to before me this

20 day of October 2000

Deandra Kirkwood

DEANDRA KIRKWOOD
Notary Public, Wayne County, Michigan
Acting in Wayne County
My Commission Expires 03/03/2005

Nov-16-00 10:36am From-SAKER, DONELSON-JACKSON-2ND FLOOR

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6982-025-A 13209

Draft of 6/10/99

1992 & 1993 Town Car, Crown Victoria and Grand Marquis Speed Control Deactivation Switch

FIELD REVIEW COMMITTEE

To: (North America)
Secretary, FRC
Suite 785
Diagnostic Service Center II
Ford Customer Service Division -- North America

The attached Evaluation Paper is being forwarded for review by the Field Review Committee. Copies have been submitted for review to:

Office of the General Counsel:	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
Vehicle Environmental Engineering:	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
Automotive Safety Office:	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
VC Purchasing Director	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>

Subject: 1992 & 1993 Town Car Speed Control Deactivation Switch

Approve: M.R. Zavalnick
Vehicle Line Director

Approve: J. Paslon
Vehicle Center Engineering Director

Approve: A. R. O'Neill
FORD Vehicle & Service Programs Director

These both Vehicle Line Director and VC Engineering Director signatures are required prior to Review by the Field Review Committee.

JUN 21 '99 18:07 PM NHTSA/DOV/PJL

Draft of 5/10/99

1992 & 1993 Town Car, Crown Victoria and Grand Marquis Speed Control Deactivation Switch**I. PROBLEM DESCRIPTION (what/when/extent)**

- A. NHTSA opened PE 98-055, dated November 24, 1998, concerning 1992 and 1994 Lincoln Town Car "engine compartment fires on the driver's side in the area of the left front wall and brake master cylinder" based on 21 reports. Ford's investigation into these reports indicates the speed control deactivation switch may have been involved in some of the reports.

Ford introduced the speed control deactivation switch on the 1992 Town Car in November, 1991, as part of the Electronic Speed Control system. The 1992 Crown Victoria and Grand Marquis introduced the Electronic Speed Control System with the same deactivation switch in February, 1992. The switch wiring and packaging location are similar on all three vehicles.

Internal brake fluid leakage is one of the reasons service technicians remove speed control deactivation switches. Internal corrosion of the electrical switch components is observed in speed control deactivation switches with brake fluid leakage. Chlorine, a by-product of salt water, is not evident in these switches.

- B. The speed control deactivation switch, F2VC-9F924-AB (service part F2VY-9F924-A) is a redundant speed control deactivation switch (CPSC 060605) for the Electronic Speed Control that is on all Town Car built between November, 1991 and November, 1997 and is on Crown Victoria and Grand Marquis, with Electronic Speed Control, built between February, 1992 and November, 1997.

C. Vehicles Affected —

Model Year (s)	Vehicle Line	Vehicle Volume	Variants	Other Limiting Factors
1992, 1993	Town Car	123,310	all	none
1992, 1993	CV/GM	155,335	all	With Electronic Speed Control

D. Markets Affected: All markets.**E. Corporate Product System Classification (CPSC) code(s): 06.06.05****2. DEFINE ROOT CAUSE**

- A. A root cause has not been conclusively identified. However, analyses have found that some speed control deactivation switches are susceptible to brake fluid leaks and corrosion that can create a conductive path in the switch resulting in overheating. Analysis performed on field samples of the speed control deactivation switches involved in underhood fires has not allowed us to conclude that the speed control deactivation switch was the cause of all of the fires. Analysis performed on speed control deactivation switch field samples from Town Car and Grand Marquis vehicles not involved in fires, though, suggests brake fluid may enter the switch cavities through cracks in distorted,

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Draft of 6/10/99

1992 & 1993 Town Car, Crown Victoria and Grand Marquis Speed Control Deactivation Switch

localized bristle portions of the internal Kapton diaphragm and that or other contaminants may enter the cavity through the electrical connector seals. These types of contamination, in the presence of a continuous electrical potential are favorable to causing corrosion. Corrosion products inside the speed control deactivation switch cavity can create a conductive path between the uninterrupted battery power and ground. During lab testing, intended to create internal corrosion, it was observed that a conductive path to ground carried an increasing leakage current of 1 to 2 amps average at 14 volts, with moments of 10 amps at 14 volts. These laboratory conditions were capable of melting or igniting the speed control deactivation switch plastic bases in a 3 hour controlled environment (see attachment 5).

In normal operation, the expected switch leakage current is less than 0.0001 amps. The switch contacts normally conduct up to 0.75 amps to the speed control clutch with the speed control engaged and 0.005 amps when not engaged. A 15 amp fuse limits the current into the switch. This circuit is always energized.

- B. The Ford process intended to prevent the diaphragm leakage and connector seal contamination is specified in the engineering specification (ES-F2VC-9P924-AA) which requires:

- electrical current leakage to the housing (ground) not to exceed 0.0001 amps;
- proof test... no evidence of fluid leakage, seepage, or drop in test pressure greater than 62 psi (in 30 seconds) is permitted;
- 500,000 impulse cycles at 224° F ambient using 275° F brake fluid;
- 80 hours of humidity cycling;
- 72 hours of Salt spray; and
- in-process testing to control the quality of the component.

Draft of 6/10/99

1992 & 1993 Town Car, Crown Victoria and Grand Marquis Speed Control Deactivation Switch

C. The design process did not identify this issue because DV testing did not show evidence of any leaking diaphragm or connector seal leakage or internal switch corrosion. The potential effect of creating a conductive path caused by contaminants on the internal switch metallic components was not anticipated in the speed control deactivation switch design FMEA. ES durability testing did not evidence a leaking diaphragm, nor connector seal leakage nor internal switch corrosion.

D. Please check the applicable item(s) in each category:

- Type: ☐ Design ☐ Manufacturing ☐ Vehicle Assembly
☐ Other (If other, specify _____)
- System: ☐ Body ☒ Chassis ☐ Cooling ☐ Fuel ☒ Electrical ☐ Engine
☐ Glass ☐ Restraints ☐ Transmission/Axle
☐ Vehicle Label/Publications ☐ Emissions Control
☐ OBD ☐ Other (If other, specify _____)
- Symptom: ☐ Brake Control ☐ Emission Compliance
☐ Other Regulatory Compliance ☐ Drivability/No Start
☐ Engine Speed Control/Unexpected Movement ☒ Fire
☐ Steering Control ☐ Occupant Restraint ☐ Personal Injury
☐ Visibility ☐ Warranty Avoidance/Consumer Satisfaction
☒ Other (If other, specify Speed Control Inoperative)

Draft of 6/10/99

1992 & 1993 Town Car, Crown Victoria and Grand Marquis Speed Control Deactivation Switch

3. PROBLEM INVESTIGATION/VERIFICATION DATA

A. Lab Test

Lab experiments were performed in an effort to reproduce ignition of the switch or melting as observed in some field returns parts and as suggested in a review of complaint data. (see Attachment 4) These tests were done with various brake fluid concentrations, water, and salt water to develop a model to understand the factors contributing to fires. The tests using brake fluid or water did not result in melting or ignition of the switch. Testing using salt water, reliably produced melted switches and some plastic switch bases were caused to ignite. This is shown in attachment 4 test 6b.

The test parameters used to create melting or ignition in an accelerated lab environment are:

Voltage: 14 volts dc
Current Limit: 15 amps
Solution: 5% NaCl and tap water
Orientation: connector 45° from vertical (in-vehicle orientation)

Procedure: Apply voltage between the switch contact components and the switch metallic base (normal operating condition). Inject salt water solution into the pressure switch cavity through the connector body. Repeat injection as water boils away. In 2 to 3 hours, the plastic switch bases will begin to melt and some will ignite drawing 1 to 10 amps of switch leakage current to ground.

Attachment 4 below lists tests that shows test details.

- B. Vehicle tests: Vehicle tests were performed on a 1992 Town Car to determine the pressure applied to the speed control deactivation switch. Maximum pressure seen in these tests did not exceed the maximum test pressure of the engineering specification for the part. No fire or smoke was observed.

C. Plant/Supplier Reports: The Town Car, Crown Victoria and Grand Marquis assembly plants no longer used this part after November 1997. There were no assembly plant reports. In 1991, the Texas Instrument manufacturing process using an auto-crimper was unable to produce parts capable of passing the required number of impulse test cycles. Texas Instruments was allowed to deliver parts made using a manual crimping operation, that met the specification. An automated crimping operation was certified for production in January of 1992. Parts from the automated process were shipped to Ford in February 1992. The increase in reported incidents coincides with this manufacturing process change at Texas Instrument (see attachment 1 & 2).

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1992 & 1993 Town Car, Crown Victoria and Grand Marquis Speed Control Deactivation Switch

D. Quality Indicators: 13 of 47 engine off-or-unknown fire incidents reported in MORS and CQIS on 1992 and 1993 Town Cars contain information relating to the speed control deactivation switch or describe a symptom related to a speed control deactivation switch failure. (See attachment 1)

Fire allegations on Town Car, Crown Victoria and Grand Marquis declined for vehicles built after November 1992. (see attachments 1 & 2) Based on a review of fire allegations potentially related to the speed control deactivation switch, the trend demonstrates that the affected Town Car population was built between November 1991 and November 1992 and the affected Crown Victoria/Grand Marquis population was built between February 1992 and November 1992.

The accrued mileage at the time of the fire, of the majority of vehicles involved, is 60,000 to 100,000 miles and the time-in-service is 48 to 72 months (see attachment 3). Vehicles built before May 1995, predictably have reached this mileage and time-in-service. The rate of fires in these following model years indicates no recurrence of the rate reported for 1992.

H. Field Reports: Two separate incidents of observed flames on the speed control deactivation switch were reported by mechanics servicing Town Cars.

Additionally, 48 switches from U.S. vehicles have been collected.

The results of examining these follow:

- 30 functioned correctly with no fluid leakage evident.
- 10 are alleged to be involved in fires.
- 6 leaked brake fluid through the Krypton diaphragm. These had black or dark green residue (containing Brake Fluid, Zinc, Copper, Sulfur) on the terminals and/or cup. 4 due to brake cracks.
- 3 would not open the switch contact
- 1 had high switch contact resistance
- 8 showed transfer of brass contact material to cup (4 fire / 4 leakers)
- 2 releasing movable contacts appear corroded away (2 leakers)
- 1 separated movable contact (leaker)

F. Part Sales: Multiple model years and 4 vehicle lines use this service part. Sales for the affected vehicles cannot be segregated for comparison to other vehicle usage.

G. No accidents have been identified attributed to this condition. Two injuries are alleged to be related to this condition.

4. ACTIONS TAKEN IN PRODUCTION; INTERIM (CONTAINMENT) AND/OR PERMANENT

The affected production materials were built in the 1992 and 1993 model years. No action is required to be taken in production as these parts are no longer used on Town Car and Crown Victoria and Grand Marquis built after the 1997 model year.

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1992 & 1993 Town Car, Crown Victoria and Grand Marquis Speed Control Deactivation Switch

5. **VERIFY EFFECTIVENESS OF CORRECTIVE ACTIONS**

No corrective action has been implemented in production as this part is no longer used on the Town Car, Crown Victoria or Grand Marquis built after the 1997 model year.

6. **ESTIMATED PRODUCTION AND PROBLEM STATISTICS (MAGNITUDE OF CONCERN)**

A.

VEHICLE AFFECTED BY MODEL AND MODEL YEAR	ASSEMBLY PLANTS (INCLUDES KNOCK DOWN CONSTRUCTIONS)	VEHICLE PRODUCTION DATES		POTENTIALLY AFFECTED UNITS	
		FROM	UP TO AND INCLUDING	NUMBER OF UNITS	ESTIMATED PERCENTAGE OF VEHICLES THAT CONTAIN THE CONDITION
Town Car	Wixom AP	11/4/1991	11/30/1992	123,310	unknown
CROWN	St Thomas AP	2/5/1992	11/30/1992	155,335	unknown

B. The source of the data is a NAVIS report.

7. **AFTERMARKET PARTS**

A. The speed control deactivation switch is released as an individual service part F2VY-9F924-A and as part of assembly F2VY-28091-B.

B. The affected service stock built before November 30, 1992 must be purged. These parts may have been used on Town Car, Crown Victoria, Grand Marquis, and Mark VIII with Electronic Speed Control. The service parts usage is being determined so that any necessary purge action can be implemented. This determination is to be completed by June 30, 1999.

8. **ASSESSMENT OF EFFECT ON VEHICLE OPERATION**

Customers may experience inoperative speed control, difficulty shifting out of park (fuse #12 blown), dead battery, brake warning lamp ON, excessive brake pedal travel and/or smoke or fire on the left hand side of engine compartment.

9. **DESCRIPTION OF CONCERN SOLUTION AND PARTS REQUIREMENTS (FIELD SERVICE ACTIONS)**

A. **Field Modification:** The modification will install a new speed control deactivation switch manufactured after November 30, 1992 and a new connector housing. Vehicles brought in for recall before the parts are available will have the harness connector disconnected from the speed control deactivation switch and the connector covered with tape to minimize exposure before the permanent modification is completed. This interim modification will cause the speed control to be inoperative until the permanent modification is installed. No other vehicle systems will be affected by the interim modification.

JUN 21 '99 16:00 FR RECALL/SERV.PROG. 313 845 1824 TO 86362

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1992 & 1993 Town Car, Crown Victoria and Grand Marquis Speed Control Deactivation Switch

B. Assessment of procedure:

- This modification procedure has been installed on a 1992 Town Car.
- The modification procedure was evaluated by PCSD using appropriate tools, equipment, and a representative vehicle.

C.

- Kit name - Brake Pressure Switch Kit
- 150,000 network kits will be ready for service by 6/25/99 (3 weeks). WERS concern C10971850 received program authorization 5/15/99.
- production part number is not applicable
- service kit part number is XW7Z-9C652-AA
- 1 kit is required per vehicle.

D. No other parts are required.

E. Drivability and Emissions not affected.

10. PROGRAM PARTS SIGN OFF/AVAILABILITY

180,000 speed control deactivation switches have been shipped to PCSD..

11. SUPPLIER INVOLVEMENT

- A. TBD
- B.
- C.
- D.
- E.
- F.

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1992 & 1993 Town Car, Crown Victoria and Grand Marquis Speed Control Deactivation Switch

12. FINANCIAL IMPLICATIONS

	Vehicle Volume	Cost Per Unit	Total Cost (000)
A Program Administration Costs	278,645	\$1.20	\$334
B Inspection Costs (Units to be Inspected but Not Modified)	0		0
C Interim Modification Costs (Units to be Inspected and Modified) • Parts (priced at dealer price plus 40%) (\$1.00 (u)) Labor (0.3 hours x \$38.34 labor rate)	278,645	\$18.50	\$5155
Permanent Modification Cost (Units to be Inspected and Modified) • Parts (priced at dealer price plus 40%) (\$11.20 (u)) • Labor (0.5 hours x \$38.34 labor rate)	278,645	\$40.37	\$11,249
D Dealer Administration Allowance (for safety and emissions recalls only) (0.1 hours x \$38.34 labor rate - N.A.)	278,645	\$3.83	1,625
E Total Cost (total A through D)		\$65.90	\$18363
F Percentage of Recommended Supplier Recovery (if applicable or TBD if unknown)			0%
G Supplier Impact (E * F, if applicable)			0
H Net FORD Exposure (E-G)			0
I Potential Warranty Offset			0

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1992 & 1993 Town Car, Crown Victoria and Grand Marquis Speed Control Deactivation Switch

13. PREVENT ACTIONS

- A. Review SDS, WCR Brake System Durability and Bench Testing (DVP&K) to examine the effect of contaminated, or aged, or incorrect brake fluid. Update FMEAs and FTAs.
- B. ~~.....gaskets have or processes inspected.....~~
- C. ~~... corporate memory updates ...~~

14. REFERENCE DATA

A. Attachments

- 1 92/93 Town Car Underhood Fire Allegations by Vehicle Build Month.
- 2 92/93 Crown Victoria/Grand Marquis Underhood Fire Allegations by Vehicle Build Month.
- 3 92 Lincoln Town Car Reported Incidents Of 40 Vehicles with Engine Off/Unknown
- 4 99924 De-activation Switch Test Synopsis
- 5 Rampart Current vs. Time, Fluid Ingress Experiment
- 6 Hydraulic Pressure Switch Cross Section

B.

T. F. Donovan, Manager
Phone: (313)390-7420
E/E Systems, LVC/TVC OFD & Core Quality
Building 5, 1A043

JUN 21 '59 12:05 PM RECALL SERU, PROG. 313 845 1924 TO 86862

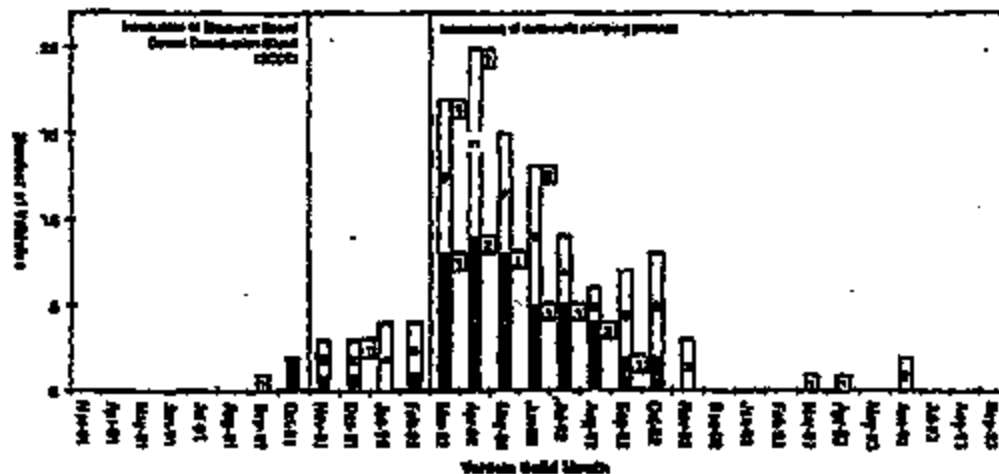
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1992 & 1993 Town Car, Crown Victoria and Grand Marquis Speed Control Deactivation Switch

ATTACHED-ENT 1

2025 Town Car Underhood Fire Allegations by Vehicle Build Month

[illegible]

NOTE: If reports differ materially, a certain amount, in thousands, of more origin not as indicated, 1. During 1970-71, and 2. Reports origin not as indicated during 1972-73, respectively.

See 1970 Census.

Abstract

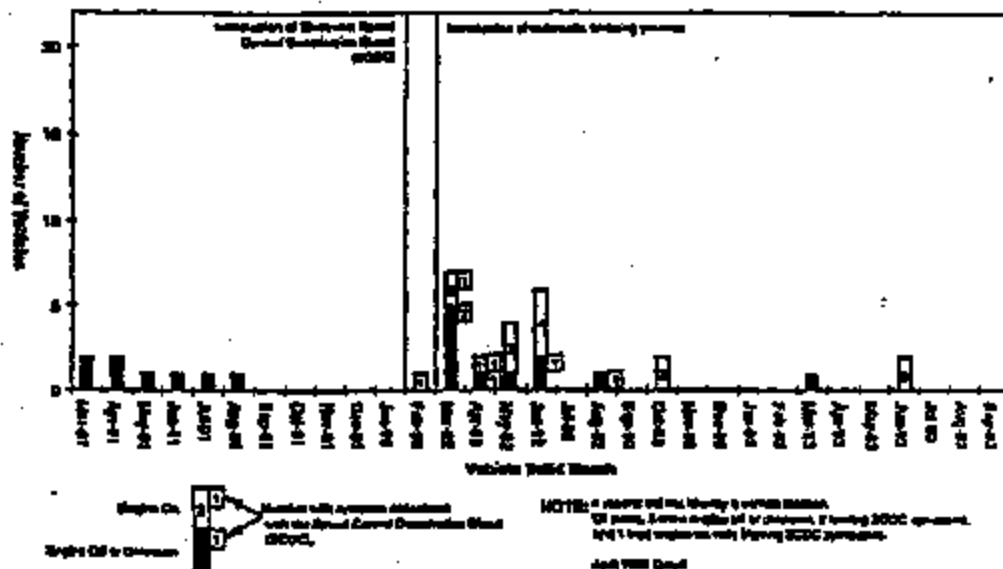
Note: SCDC symptoms. Customers may experience inoperative speed control, difficulty shifting out of park (Pine #12 blown), dead battery, brake warning lamp ON, excessive brake pedal travel and/or squeal or fire on the left hand side of engine compartment.

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1992 & 1993 Town Car, Crown Victoria and Grand Marquis Speed Control Deactivation Switch

ATTACHMENT 2

82/93 Crown Victoria/Grand Marquis Underhood Fire Allegations by Vehicle Build Month



Note: SCDC symptoms. Customers may experience inoperative speed control, difficulty shifting out of park (fuse #12 blown), dead battery, brake warning lamp ON, excessive brake pedal travel and/or smoke or fire on the left hand side of engine compartment.

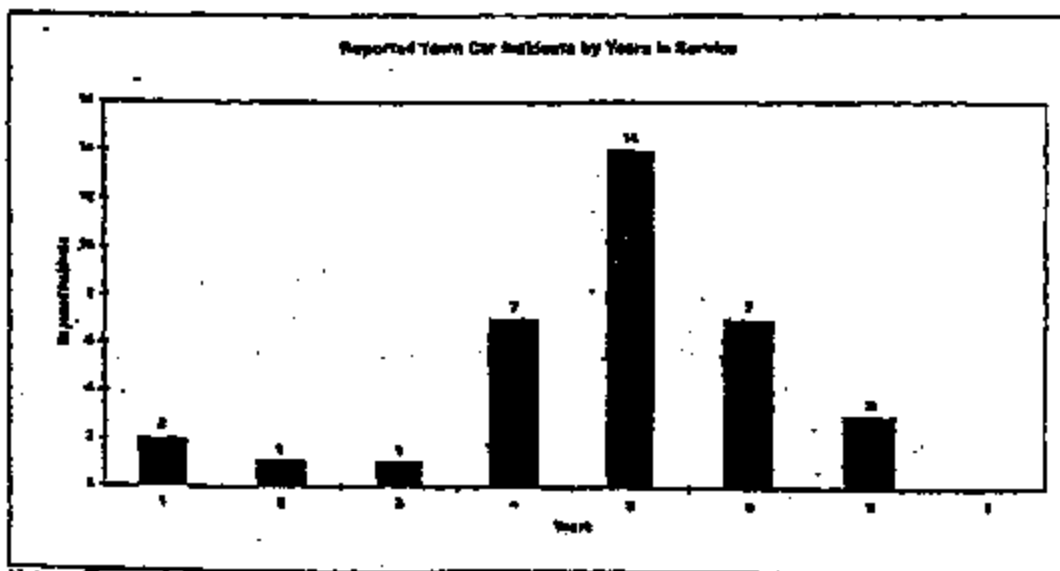
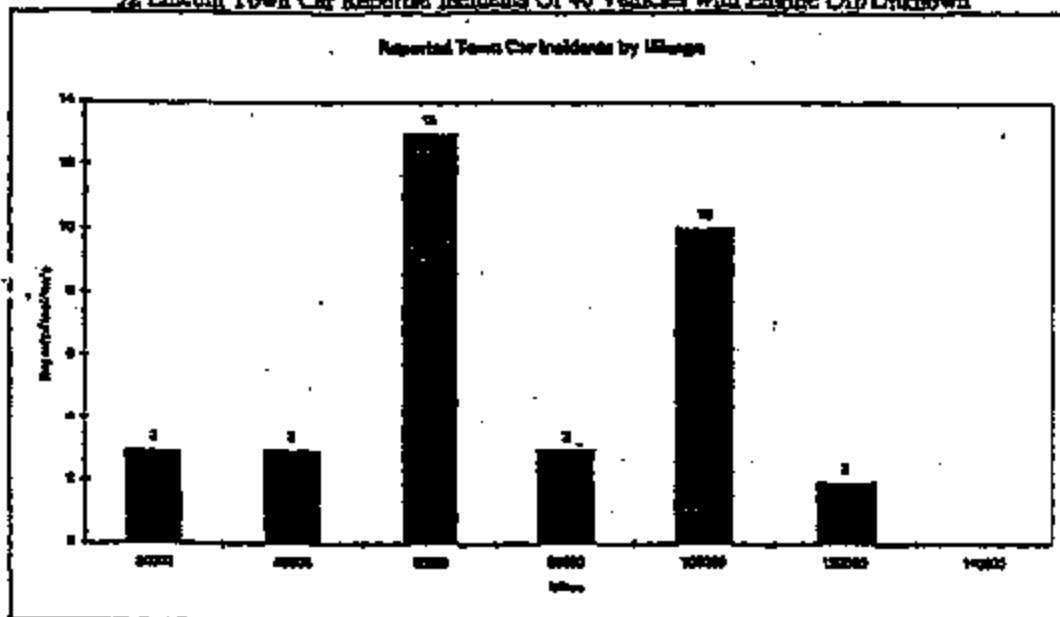
JUN 21 '95 15:05 PM RECALL/SERIAL #001. 313 843 1024 TO 05262

P.14

Draft of 6/10/99

1992 & 1993 Town Car, Crown Victoria and Grand Marquis Speed Control Deactivation Switch

ATTACHMENT 3

32 Lincoln Town Car Reported Incidents Of 40 Vehicles with Engine Off/Unknown

Note: There were 5 vehicles with unknown VINS, therefore, years in service were undetermined.
There were 4 vehicles with unknown miles.

Draft of 6/10/99

1992 & 1993 Town Car, Crown Victoria and Grand Marquis Speed Control Deactivation Switch**ATTACHMENT 4****9F924 De-activation Switch Test Synopsis**

This document is a synopsis of tests conducted during the investigation of the 9F924 speed control deactivation switch manufactured by Texas Instruments (P/N 77PS). These tests attempt to reconcile the parameters of the system with alleged field events. The following are the system parameters around the application of the speed control deactivation switch.

- I. The switch components are exposed to battery potential continuously after the vehicle is manufactured.
 - A. The hexport of the switch is screwed into the brake proportioning valve that is mounted to the vehicle frame. The vehicle frame is a ground potential.
 - B. Battery voltage is continuously connected to moveable contact. The ignition switch does not modify battery voltage to the speed control deactivation switch.

The intent of this document is to highlight test findings.

Test 1

- Objective:** Determine if switch ignition can occur under the following conditions:
- Switch contact flooded with brake fluid mixed with varying amounts of % tap water.
 - 14 volts applied to one terminal, second terminal electrically floating. (No electrical load across switch terminals).
 - Switch hexport electrically grounded.
- Test eight samples with the following mixtures:
- 2 with 4% tap water in brake fluid
 - 2 with 6% tap water in brake fluid
 - 2 with 10% tap water in brake fluid
 - 2 with 75% tap water in brake fluid

Results: No ignition occurred. No significant temperature rise observed. Leakage current to ground ranged from 0.5 mAmps to 5 mAmps over the 250-hour test duration.

Conclusion: While degradation in performance is observed, brake fluid does not develop corrosion or a leakage current path quickly enough to use for laboratory validation testing.

Test 2

- Objective:** Determine if switch ignition can occur under the following conditions:
- Switch contact flooded with brake fluid mixed with varying amounts of % tap water.
 - 14 volts applied to one terminal, second terminal connected to a 14-ohm resistor tied to ground. (1 Amp load across switch terminals).
 - Switch hexport electrically grounded.

Results: No ignition occurred. The temperature rise was less than 10°F over the 250-hour duration of the test.

Conclusion: Heat generated by the switch contacts is not sufficient to ignite the plastic base or brake fluid.

Test 3

JUN 21 '99 16:18 FR RECALL/SERU.PRODS. 313 845 1324 TO 86662

P.16

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1992 & 1993 Town Car, Crown Victoria and Grand Marquis Speed Control Deactivation Switch**ATTACHMENT 4**

Objective: Determine if switch ignition can occur under the following conditions:

- A heater element installed in contact cavity of the switch.
- Apply power to the heating element until plastic base ignites.
- Apply an external spark to the tines from the plastic.
- Brake fluid present in the contact cavity (wet device) and not present in the contact cavity (dry device).

Results: Ignition occurred in both wet and dry devices.
Wet device: The internal temperature of a wet device reached 550°F. A hole melted through the base of the switch (close to the heating element). The externally applied spark ignited the tines and flames engulfed the switch.
Dry device: The internal temperature of a dry switch reached over 1000°F. The switch base popped over. The externally applied spark ignited the tines and flames engulfed the switch.

Conclusion: The plastic base with brake fluid can be ignited when 5 Watts of electrical power are dissipated as heat in the switch for 15 minutes, followed by a spark.

Test A

Objective: Identify the interactions of the materials found in the switch returned from the Reddick report by placing a brass and copper electrode in a pool of brake fluid with a 12 volt potential between them.

Results: After 24 hours, a black residue formed on both electrodes. The brake fluid did not ignite.

Conclusion: The material found in the switch returned from the Reddick report was a result of an interaction between brake fluid, the internal switch components and the continuous electrical field present in the vehicle.

Test B

Objective: Show that the speed control deactivation switch is capable of supporting the maximum design current load by applying 15 Amps through the switch contacts until they reach a stable temperature.

Results: The temperature rise stabilized at 38°F after 10 minutes. Vehicle test results show a maximum temperature of 250°F at the left-hand engine mount. This mount is near the speed control deactivation switch. With the temperature rise observed, the maximum temperature the speed control deactivation switch is exposed to is 288°F. This is less than the 433°F melting point of the plastic used in the switch base.

Conclusion: The speed control deactivation switch will not ignite under extreme vehicle environmental conditions. Heat to cause an ignition must come from a source outside of the normal design of the switch. To ignite a switch, either an external source, or an internal short to ground must provide heat.

Test Ba

Draft of 6/10/99

1992 & 1993 Town Car, Crown Victoria and Grand Marquis Speed Control Deactivation Switch**ATTACHMENT 4**

Objective: Determine if corrosive degradation of switch electrical components can cause a decrease in electrical isolation (and thus a source of heat) in the switch that may lead to an ignition. Subject the switch to the following conditions:

- 5% NaCl in tap water solution is injected into contact cavity of a switch.
- 14 Volts is applied to the switch.
- Hensport is grounded.
- Current is limited at 15 Amps.

Results: Of 4 samples tested, over a 2 - 3 hour period, the switch leakage current averaged 1 Amp while reaching peaks of 10 Amps. Near the end of the experiment with leakage current greater than 2 Amps, the switch bases started to melt. 2 of the switches continued to heat until the plates ignited. The other 2 continued to melt until electrical connection was broken.

Conclusion: Corrosion materials can create a conductive path that may lead to ignition. In this experiment, NaCl was used to accelerate the corrosion in the switch. Other corrosive processes may yield the same results.

Test 7

Objective: Determine if switches meet cycle life specification by running the life cycle test beyond specification until the switch performance is degraded.

Results: The first sample developed a leak in the kapton seal after 728,000 cycles. The mean time to developing leaks was determined to be 1,200,000 cycles.

Conclusion: The kapton seal exceeds design specification of 800,000 cycles.

Test 15a

Objective: Determine if long time switch exposure to brake fluid can lead to an ignition.

Results: Test is ongoing. Results to date show no increase in conductivity of both new and used brake fluid. At 350 hours of testing, current draw on each device is less than 20 mAmps.

Conclusion: 350 hours of brake fluid exposure is not sufficient to cause ignition. At 350 hours of testing, current draw remains below the levels needed to create ignition as simulated in laboratory experiments.

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1992 & 1993 Town Car, Crown Victoria and Grand Marquis Speed Control Deactivation Switch

ATTACHMENT 4

Test 6b

Objective: Understand the ignition process, determine the current path and establish a repeatable ignition method.

Results: Multiple attempts at ignition, via injection of a 5% NaCl in tap water into the contact cavity of switches, has resulted in a repeatability rate of approximately 50%. Plots of horsepower current vs. time show an increase in leakage current until the point of ignition in 2 to 3 hours.

Conclusion: A repeatable laboratory method for switch ignition has been established. Based on horsepower current measurements, the current path is from switch terminals to horsepower body. When a NaCl in tap water solution is repeatedly injected into the contact cavity of powered switches, electrolytic corrosion of the switch terminals results in an increase in terminal resistance and a conductive path to the sensor housing. When sufficient power is drawn through the terminal and conductive path, the materials inside the switch heat. These materials may begin to glow red hot. A hole melts through the switch base and ignition occurs. There is arcing visible throughout the corrosion process that may provide the spark necessary for ignition.

Test 13a

Objective: Compare various fluids in the established ignition method.

Results: A switch filled with 5% NaCl in tap water resulted in an ignition when average horsepower leakage current exceeded 2.5 Amps during a 3 hour test. Switches that were filled with tap water and rainwater drew less than 10 mAmps during a 3-hour test and showed little signs of corrosion. Switches filled with new and used brake fluids, with water and without water, all had less than 2 mAmps leakage current and showed no signs of accelerated corrosion.

Conclusion: NaCl in tap water is the most effective method for creating a short-term corrosion to produce heat in the switch. While brake fluid is not as effective in producing corrosion for a lab test, it does produce corrosion when introduced into the switch cavity.

Test 15

Objective: Compare the burn characteristics of various plastics that have the potential to be used as switch base materials. Plastics tested have melting and flowing characteristics compatible with the molding process of the switch base.

Results: When 5% NaCl in tap water was injected into switches with different base materials, the following results were obtained: Cellanox 4300 ignited 3 out of 5 attempts. Noryl ignited 2 out of 5 attempts. Zylol ignited 1 out of 5 attempts.

Conclusion: Different plastics exhibit different ignition characteristics. None of the plastics tested guaranteed protection against ignition.

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1992 & 1993 Town Car, Crown Victoria and Grand Marquis Speed Control Deactivation Switch

ATTACHMENT 4

Test 15b

Objective: Compare: 1) the probability of switch ignition in the vertical position (connector up) versus a 45° orientation and 2) the probability of switch ignition as a function of rotational angle (about the switches length axis) in the 45° orientation.

Results: Switch ignitions in the lab occurred with the switches mounted both vertically and 45° from vertical. In addition, switch ignitions in the lab occurred at various rotational angles.

Conclusion: Switch ignition does not appear to be sensitive to vertical orientation vs. 45° orientation nor to rotational angle in the 45° orientation.

Test 16

Objective: To test proposed relay circuit.

Results: A switch was injected with 5% NaCl in tap water solution and placed in a proposed current limiting circuit for 48 hours. The current draw remained constant at 180 mAmps throughout the test. There was no thermal activity observed and the contact arm remained intact.

A switch was brought to a high leakage current condition using the established ignition method. An impending burn is a condition where a corrosive resistance has built up in the switch and an ignition is imminent as determined by observing leakage current. The switch was placed in the proposed relay circuit for 18 hours where it drew 180 mAmps, showed no visible thermal activity and did not result in a burn. Because the proposed relay circuit acts as a resistor that limits current to the switch, the maximum power to the switch is limited to 0.75 Watts. A resistive wire was wrapped around the base of the switch and 0.75 Watts of power was applied to the wire. The wire became warm to the touch but had no effect on the switch.

Conclusion: 0.75 Watts, the maximum power in the proposed circuit design, is not enough power to cause switch terminal heating sufficient for ignition. In previous tests, using a resistor as the heating element, approximately 5 Watts of power was necessary to create an ignition. There is not enough power in the proposed circuit to create ignition.

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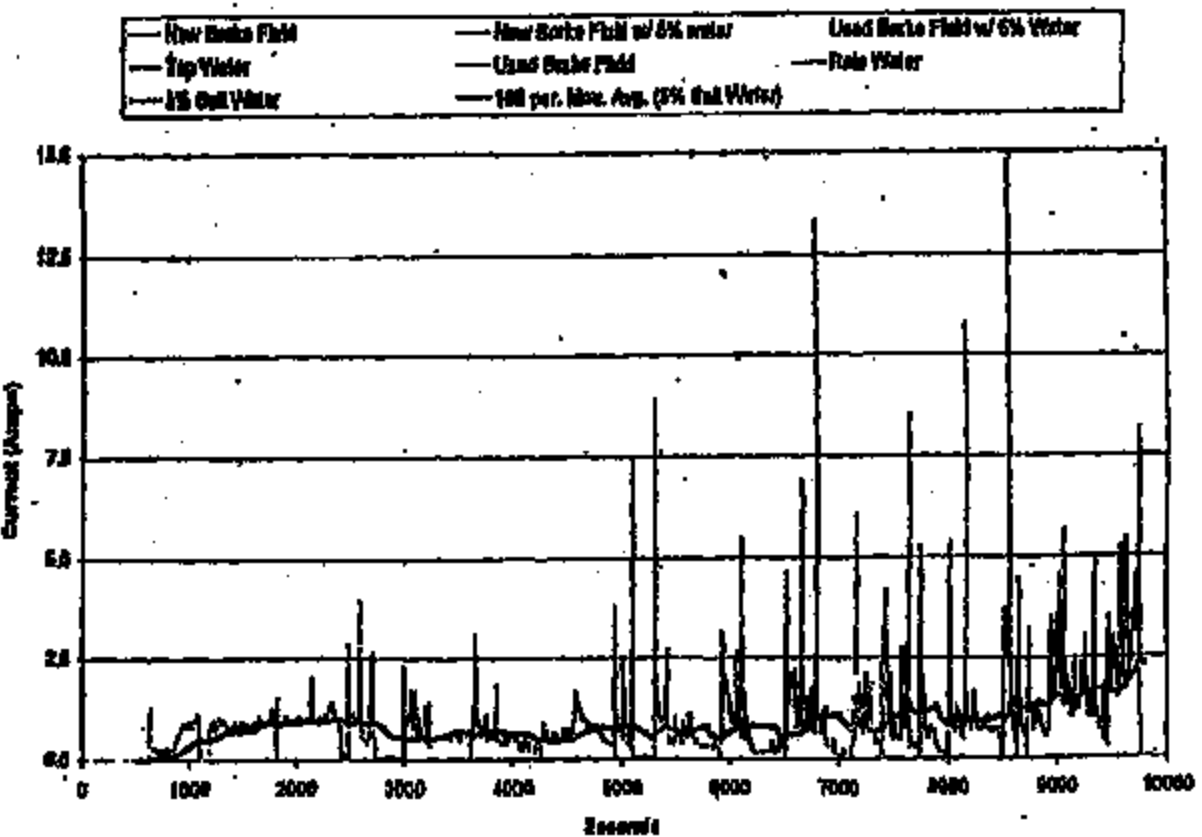
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ATTACHMENT 8

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Hexport Current vs. Time Fluid Ingress Experiment



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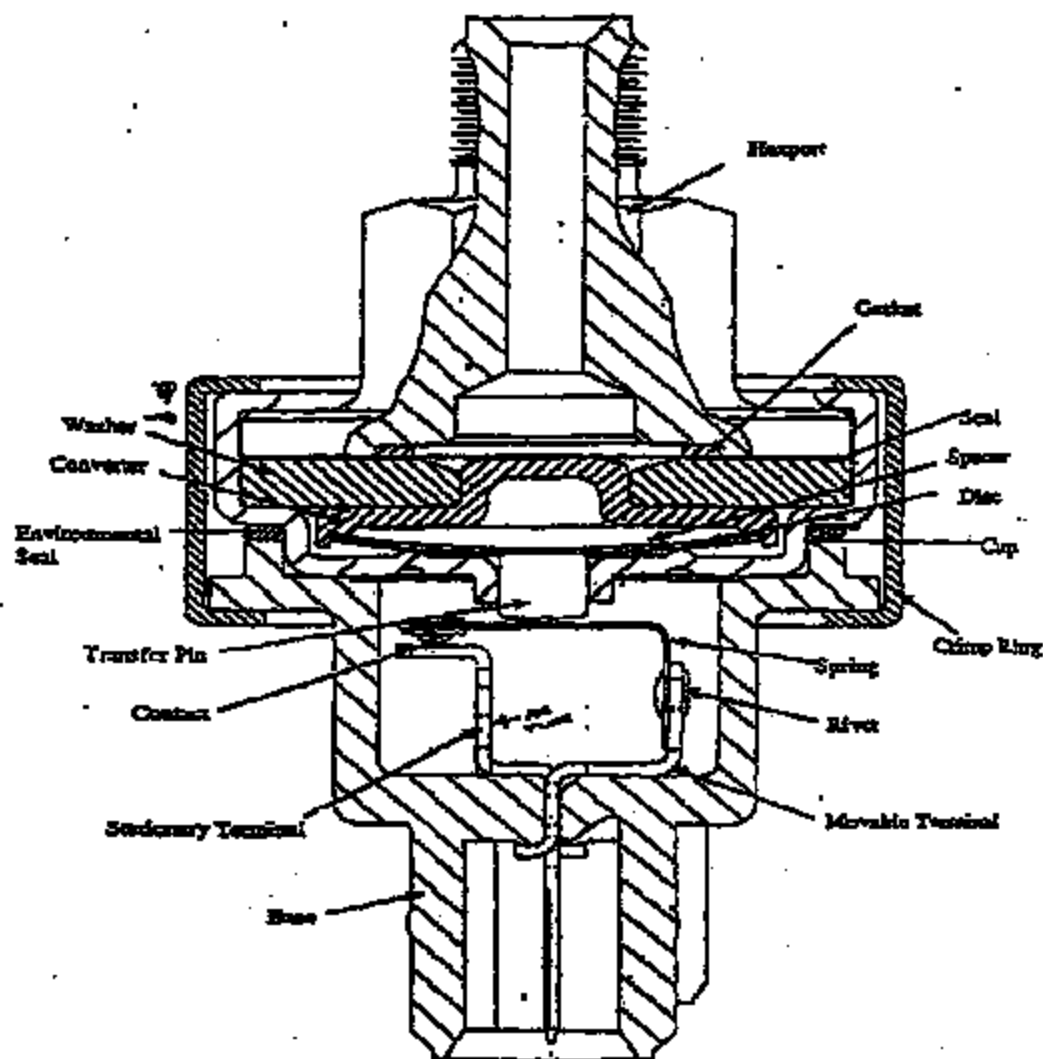
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1991 & 1993 Town Car, Crown Victoria and Grand Marquis Speed Control Deactivation Switch

ATTACHMENT B

Hydraulic Pressure-Switch Cross Section



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Automotive Recalls and Technical Service Bulletins for 1992 Lincoln Town Car V8-281 4.6L SOHC.

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Bulletins for 1992 Lincoln Town Car V8-281 4.6L SOHC

Safety Recalls

TSB Number	Issue Date	TSB Title
1. 920718	SEP 92	Recall 920718 Hood Latch Mechanism

Engine Recalls

TSB Number	Issue Date	TSB Title
1. 920718	SEP 92	Electronic Engine Control Pre - Recall 920718

General Recalls

TSB Number	Issue Date	TSB Title
1. 920718	SEP 92	Recall 920718 Hood Latch Mechanism

Service Bulletins

TSB Number	Issue Date	TSB Title
1. 92-2-7	FEB 92	Air Conditioning Heavy And N. Type Odors
2. 92-24-14	NOV 92	Wipe Wornout Terminal Repair And Wire Splice
3. 92-24-1	OCT 92	Revised Brake Pressure Warning LK (DPF) Valve
4. 92-12-10	SEP 92	Identification of Run-Park Act. and Refrigeration
5. 92-17-8	AUG 92	Vehicle Body Latch Mechanism
6. 92-17-8	AUG 92	Ball Joint Mount Replacement
7. 92-16-7	AUG 92	ACCU/ATON Transmission Serv. Tip
8. 92-16-6	AUG 92	Loose Catalytic Converter H. dials
9. 92-11-11	MAY 92	ACCU/ATON Transmission Serv. Tip Extended 1-2
10. 9208	MAY 92	Fuel Delivery - Customer Exp. tions Vs. Vehicle
11. 92011	MAY 92	Transmission Fluid Gauge Cha
12. 92012	DEC 92	Engine Converter Cleaning or Replacement
13. 92017	DEC 92	Shocking on Vibration Under 1-2 to Replace The
14. 92046	NOV 92	Electrical Noise Identification and Replacement
15. 92048	NOV 92	Service Tip - Engine Converter Leak Test Procedure
16. 92034	NOV 92	MAX Inspection, Rite 122. 7. 1108, Detroit
17. 92021	OCT 92	Reg/Title on Windshield/Waze
18. 92022	OCT 92	Replacement of the Main Air
19. 92024	SEP 92	Air Conditioning Check O-W. Applications
20. 920718	SEP 92	Use of R-13 Refrigerant for
21. 92018	SEP 92	A/C System Service Tip 122

<http://www.alldata.com/consumer/TSB/92/920541.htm>

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22.	94133	JUL 96	Filtering Refrigerant After Replacing A/C Compressor
23.	94133	JUN 96	Character During Turns After Extended Highway Drive
24.	94107	MAY 96	California Reformulated Gasoline (CAFRG) Service
25.	9451	FEB 96	Darklid - Power Roll-Down - Inoperative
26.	9444	FEB 96	Fuel - Information of Gasoline - Service Tip
27.	9457	JAN 96	Fuel Pump Buzz/Whine Through Radio Speaker
28.	ATWAT3127	JAN 96	Output shaft Pin Location/Updated Shaft
29.	ATWAT3119	JUN 96	Revised Forward Spring Rate
30.	ATWAT3108	JUN 96	Valve Body Cross Leaks
31.	94211	OCT 95	Alt Bag Modules - Discolored/Marred Covers
32.	94212	OCT 95	Brakes - Excessive Road Lubricant Causes Rattle
33.	94208	OCT 95	Anti-Lock Brakes Cycling on Rough Roads
34.	94184	SEP 95	Air Conditioning - FORD Approved Franchise
35.	94182	SEP 95	Recycled Engine Coolant - Service Tips
36.	941610	AUG 95	New Automatic Fluid Changer - Service Tip
37.	94144	JUL 95	Wall Joint Replacement Procedure Tip
38.	94121	JUL 95	A/C Evaporator Core-On Vehicle-Leak Test
39.	94122	JUL 95	Temperature Gauge Reads Low/Erratic
40.	94121	JUN 95	Windshield, Wipers, Mounted, Material Usage Tip
41.	94102	MAY 95	Connector, DIS Ignition Revised
42.	9401	MAY 95	Detached - Revised Condition Only - Warranty Revised
43.	9404	MAY 95	Leaks - Removable Fan Gasket and Filter
44.	9404	MAY 95	Leaks - Removable Fan Gasket and Filter
45.	9401	MAY 95	Leak - From Particle Removal
46.	94012	MAY 95	Adding Refrigerant Oil Procedure
47.	94015	MAY 95	Intermittent Loss of Torque at 3-4 Upshift
48.	9401	FEB 95	Interior Trim - Amusement Vinyl Cover Separation
49.	94013	FEB 95	Possible Water Intrusion of the ABS/TA Super
50.	9406	FEB 95	Transmission - Loose Connector
51.	9422	JUN 95	Air Conditioning O-ring Removal - Service Tip
52.	9423	JUN 95	Distance-To-Empty and Fuel; Brake Gauge Operate
53.	ATWAT3114	JUN 95	Delayed Engagement, Shift Error, Possible HES
54.	ATWAT3127	JUN 95	Harsh 4-3 Shiftdown - Valve Body Repair
55.	ATWAT3108	JUN 95	Shifts To Neutral As Heavy Throttle
56.	94208	DEC 94	ACUTE/CHRON - Delayed or No Forward Engagement
57.	94235	DEC 94	Anti-Theft Protection - Reset of TSS's - Service
58.	94242	DEC 94	Leak Water Washing Equipment and Warranty Int
59.	94236	DEC 94	Owner Notification - False Alarm Activation
60.	94241	NOV 94	Sealed Windshield Conversion to Regular Windshield
61.	94234	NOV 94	Paint Preparation Procedure And MEIS Information
62.	94224	OCT 94	Idle Air Bypass Valve Noise Or Moan
63.	94212	OCT 94	Air Suspension - Hum Noise
64.	94202	OCT 94	Frame & Crossmember - Crack or Weld Separation
65.	94182	SEP 94	Front Seat - Loose at Clunk When Braking or Accelerate
66.	94183	SEP 94	No Crack - Possible Corrosion At Starter Release
67.	94172	NOV 94	Rear View Mirror - Detaches From Windshield
68.	94169	AUG 94	Sealed Exhaust Gas Oxygen Sensor Application CNA
69.	94156	JUL 94	Air Conditioning - Compressor Oil Service
70.	94-14-2	JUL 94	R-12 Refrigerant Substitution
71.	94213	JUN 94	Refrigerant A/C - Cold Engine Lockout Operation
72.	94217	JUN 94	Oil Filter Bulbous & Eventually Leaks
73.	9401	MAY 94	Engines - Isolator and Bracket Assembly Replaces
74.	9471	MAY 94	Used Valve From 'a' Piller Area
75.	9427	JUN 94	Miss/Stumble/rough Idle
76.	ATWAT3124	JUN 94	Cooler Return Line - Filter Installation
77.	94283	DEC 93	Air In Power Steering System
78.	94281	DEC 93	Revised Sealing Inoperative
79.	942612	DEC 93	Return of Corrosion Struts, Selenoids and Shocks
80.	94241	NOV 93	Removal Corrosion Repair Materials
81.	942412	NOV 93	Remote Keyless Entry System
82.	94246	NOV 93	rough Idle/ hesitation/ Poor Startup Output
83.	942312	NOV 93	AC Transmission - Diagnostic Information
84.	94228	NOV 93	ECG Sensors - Silicone Contamination

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Automotive Recall and Technical Service Bulletins for 1992 Lincoln Town Car

65.	932114	NOV 93	Engine Gasket Surface Cleaning Procedures
66.	932115	NOV 93	Engine Knock Noise From Lower Front During Ascent
67.	932116	OCT 93	Air Conditioning - Return of Obsolete Filter Kit
68.	932117	OCT 93	Glass - Irregularities or Hottling in Tempered Glass
69.	932118	OCT 93	Failure Modes - Computer Shifted Transmissions
70.	932119	SEP 93	Air Conditioning - Use of Correct Filter/Service Kit
71.	932120	SEP 93	Electronic Instrument Cluster Testing Revised
72.	932121	SEP 93	Starting System Service Information Revised
73.	932122	SEP 93	Steering - Noise During Right Hand Turns
74.	932123	SEP 93	Steering - Excessive Rear Lining Wear
75.	932124	SEP 93	Steering - Excessive Front Lining Wear
76.	932125	SEP 93	Steering - Excessive Wheel Runout
77.	932126	JUL 93	Steering - Excessive Wheel Runout
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147.	932196	JUL 93	Steering - Excessive Wheel Runout

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148. 91235	JAN 92	New Electronic Transmission Reference Materials
149. 91236	DEC 91	Ignition System Diagnostics Revised
150. 91238	NOV 91	A/T ACCE "Do Not Service Tag"
151. ATTC07078	NOV 91	How To Use A Pressure Gauge - Automatic Trans.
152. 91225	OCT 91	New Refrigerant O-Rings (Green Color)
153. 91191	SEP 91	Overhaul Valve Repair Procedures
154. ATTC06063	JUL 91	Direct Clutch Failure - Excessive Clutch Burn Wear
155. ATTC06043	JUN 91	No 4th, Low 4th, Falls Out Of 4th
156. 91268	DEC 90	New Pre-Delivery Form
157. ATTC06029	OCT 90	Engine Testing With A Vacuum Gauge - Auto Trans.
158. ATTC0602006	FEB 90	Automatic Transmission Fluid
159. ATTC06030	OCT 89	Automatic Transmission Flush Part 2
160. ATTC06017	SEP 89	28 Steps To Successful Auto Transmission Repair
161. ATTC06023	AUG 89	Automatic Transmission Flush Procedures
162. ATTC06010	JUN 89	3-4 Accumulator Change
163. ATTC06015	SEP 87	ALL Automatics - Front Bushing Wear
164. ATTC06048	AUG 87	Retal Sealing Rings - Automatic Transmissions

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