

EA02025

TEXAS INSTRUMENTS, INC.'S

09/10/03 LETTER TO ODI

REQUEST 11

BOX 13

PART A – C

PART C

Currey, Pat

From: Mulligan, Sean [smulligan@email.mc.ti.com]
Sent: Friday, April 30, 1999 2:15 PM
To: Beringhause, Steven; McGuirk, Andy; Dague, Bryan; Sharpe, Robert
Subject: Items for Ford

The following items were sent to Ford for analysis via Robert Sharpe:

- (10) 77PS switches.
- (1) 48 inch roll of Kapton from production.

The items will be delivered Monday morning.

All the best,

Sean P. Mulligan

Phone (508) 236-2535
Fax (508) 236-3586

Currey, Pat

From: Mulligan, Sean [smulligan@email.mc.ti.com]
Sent: Monday, May 03, 1999 10:15 AM
To: McGuirk, Andy
Subject: Package sent to Ford

Hi Andy,
Rob Sharpe has possession of the package sent to Ford on Friday (77PS switches and roll of Kapton). I don't know where the package goes from there. Does Rob know? (I only spoke with his secretary).

All the best,

Sean P. Mulligan

Phone (508) 236-2535
Fax (508) 236-3586

Currey, Pat

From: _ Hey, D [dhey@email.mc.ti.com]
Sent: Monday, May 03, 1999 3:37 PM
To: Miranda, Patrick
Cc: Proia, Stephen; Sundaram, Sundar; McGuirk, Andy; Watt, Jim; Dague, Bryan; Mulligan, Sean; Douglas, Charles
Subject: IP-2 Temperature Cycling & Impulse Testing

Pat,

Per our conversation of this morning, the test equipment needed to perform the temperature cycling test is down do to a leaking cylinder. We also discussed a 2-3 week lead time for the replacement cylinder.

We have delayed starting the temperature cycling test several times due to more urgent tests and the fact that there would be no impact to the final completion date for IP-2 testing. A further delay of more than 2 weeks in starting the temperature cycling test will impact the start of the impulse test. This test is run on the same equipment. The projected completion date for the IP-2 testing could slip depending on the availability of the replacement cylinder.

Please advise me as to when the cylinder will arrive and the test equipment will be available. Thanks.

Regards,
Dan Hey

Currey, Pat

From: _Martin, Scott [smartin1@email.mc.ti.com]
Sent: Tuesday, May 04, 1999 2:01 PM
To: Dague, Bryan; Gildea, Robert; Milkey, Mary-Jean; Haynes, John; Pombo, Julie
Cc: Foster, Barbara; McGuirk, Andy; Pechonis, John
Subject: RE: 77PS

All,

Bryan would like to refer to the PO for this answer, I agree with him.

John H.,

Have we received the PO yet? What part number(s) should we be building?

Regards,
Scott
phone: (508) 236-3434
pager: (508) 236-1010 #0929
fax: (508) 236-2328
e-mail: smartin1@ti.com

From: Martin, Scott
Sent: Tuesday, May 04, 1999 2:09 PM
To: Dague, Bryan
Cc: Gildea, Robert; Milkey, Mary-Jean; Haynes, John; Pombo, Julie;
Pechonis, John
Subject: 77PS

Bryan,

In regards to the 77PS rebuild, is it the 77PSL2-1's we should be rebuilding? Please confirm.

Thanks-

Regards,
Scott
phone: (508) 236-3434
pager: (508) 236-1010 #0929
fax: (508) 236-2328
e-mail: smartin1@ti.com

Curry, Pat

From: Foster, Barbara [bfoster@emadl.mc.d.com]
Sent: Tuesday, May 04, 1999 4:11 PM
To: Dague, Bryan; Gildes, Robert; Milkey, Mary-Jean; Haynes, John; Pombo, Julie; Martin, Scott
Cc: McGuirk, Andy; Pechonis, John
Subject: RE: 77PS

Team,

This is to confirm that the '92-'93 Town Car used our 77PSL2-1 which was as a snap switch.

Regards,

Charlie

Charlie Douglas
(508) 236-3657 (P)
(508) 236-1598 (F)
c-douglas28ti.com

From: McGuirk, Andy
Sent: Tuesday, May 04, 1999 12:12 PM
To: Haynes, John; Douglas, Charles; Pechonis, John
Cc: Dague, Bryan; Baumann, Russ; Sharpe, Robert; Rowland, Thomas
Subject: FW: (U) Clarification

SEVERAL KEY POINTS HERE.....

FORD WANTS THE EXACT SAME SWITCH AS WAS IN '92-'93 TOWN CARS... I THINK THAT WAS OUR SNAP SWITCH.

THEY ARE GETTING ALL CONFUSED BECAUSE THEY 'SEE' THE PART ON PROPORTIONAL VALVES AND ARE LOST IN THE PARTS TRANSLATIONS.

Scott,

Ford has confirmed they still want 77PSL2-1 and are putting SOX on schedule for week of 5-10 ship. They are using their existing purchase order. You should see the requirement in the AM, once the LOI feed runs.

From: Martin, Scott
Sent: Tuesday, May 04, 1999 3:01 PM
To: Dague, Bryan; Gildes, Robert; Milkey, Mary-Jean; Haynes, John; Pombo, Julie
Cc: Foster, Barbara; McGuirk, Andy; Pechonis, John
Subject: RE: 77PS

TI-NHTSA 018897

All, _

Bryan would like to refer to the PO for this answer, I agree with him.

John K.,

Have we received the PO yet? What part number do we should we be building?

Regards,
Scott
phone: (508) 236-1434
pager: (508) 236-1010 #0929
fax: (508) 236-2328
e-mail: smartini@ti.com

From: Martin, Scott
Sent: Tuesday, May 04, 1999 2:09 PM
To: Oague, Bryan
Cc: Glida, Robert; Milkey, Mary-Jean; Haynes, John; Pombo, Julie; Pechonis, John
Subject: 77FS

Bryan,

In regards to the 77FS rebuild, is it the 77PSL2-1's we should be rebuilding? Please confirm.

Thanks-

Regards,
Scott
phone: (508) 236-1434
pager: (508) 236-1010 #0929
fax: (508) 236-2328
e-mail: smartini@ti.com

TI-NHTSA 018898

From: Foster, Barbara
Sent: Tuesday, May 04, 1999 5:10 PM
To: Dague, Bryan; Gilder, Robert; Milkey, Mary-Jean; Haynes, John;
Pombo, Julie; Martin, Scott
Cc: McGuirk, Andy; Pechonis, John
Subject: RE: 77PS

Team,

This is to confirm that the 92-93 Town Car used our 77PSL2-1 which was / is
a snap switch.

Regards,

Charlie

Charlie Douglas
(508) 236-3637 (F)
(508) 236-1598 (F)
c-douglas2@ti.com

1

TI 0004808

Currey, Pat

From: Dague, Bryan [bdague@mail.mcti.com]
Sent: Tuesday, May 11, 1999 12:24 PM
To: Czara, David; Charboneau, Tom; Sellers, Matthew MJS2
Cc: Beringhaus, Steven; McGuirk, Andy
Subject: 77PS history??

Guys,

I have tried to contact most of you by phone, but little success.

I am looking for some information on the 77PS2-1. Specifically, I am trying
to understand the change we made in the fall of 1991 to our crimping
process. Ford is asking for details on the change from the manual crimp
process to the production crimp process. I have located some test reports
that indicate early diaphragm failure may be a result of poor crimping --
very incomplete information. I am trying to understand the physics and the
manufacturing details of this change.

Please contact me to discuss, and hopefully our chat will spark something in
your memory that may help resolve this issue.

Regards,
Bry

1

TI-NHTSA 018899

Curry, Pat

From: McGuirk, Andy [a-mcguirk@etmail.mcti.com]
Sent: Wednesday, May 05, 1999 10:45 AM
To: Demers, Richard
Cc: Sundaram, Sundar; Lier, Lester; Hey, D; Martin, Scott
Subject: FW: 77PSL2-1 (F2VY 9F924 A) Ford Service Part

WE ARE QUICKLY BUILDING UP A 150,000 PCS RUN OF 77 PS SWITCHES FOR FORD SERVICE PARTS.

I WANT US TO TAKE EXTRA PRECAUTIONS DURING THIS BUILD FOR LEAKERS AND DAILY IMPULSE TESTING.

RICH, PLS CLOSE WITH SUNDAR AND LES AND IMPLEMENT A PLAN ASAP TO ASSURE WE SPEND MORE AUDIT TIME IN THAT LINE WHILE WE BUILD THESE UNITS.

SEND ME A DAILY VOICE MAIL OF OUR RESULTS.

A

AUTOMOTIVE SENSORS AND CONTROLS QRA MANAGER
14 FOREST ST M/S 23-05
ATTLEBORO, MA 02703
TEL : (508) 236-3080
FAX : (508) 236-3745
MOBILE: (508) 208-6119
PAGE: (800) 467-3700 PIN 604-2044

From: Milkey, Mary-Jean
Sent: Wednesday, May 05, 1999 11:31 AM
To: Foster, Barbara; Pombo, Julie
cc: Haynes, John; McGuirk, Andy; Douglas, Charles; Walsh, Thomas; Ketch, Paul; O'Neill, Ed; Spencer, John; Walsh, Thomas; Mendonca, Kelly; Gildea, Robert; Nicholls, Winston; Martin, Scott
Subject: RE: 77PSL2-1 (F2VY 9F924 A) Ford Service Part

Julie,

With the first 50K due next Friday, we obviously need to turn our focus on the 77PSL2-1 as much as we can along with running the scheduled requirements. Also, keep in mind that we need to pilot the lots (sometimes taking up to 16 hours) prior to producing. In order to manage this process efficiently, it is important that you keep us updated as to when we will see deliveries of those components we do not have in inventory. Since these components are also used in other devices, what we don't want happening is to work overtime using up our inventories, while leaving us dry during the week.

According to Marga, the pins that we use in ATTL are within -141 through -145 category. In looking at an IC41 there are a lot of these pins in

TI-NHTSA 01890

Mexico. Marga indicates that Mexico does not use these pins, if at all rarely. Can we get these pins back to help with this demand instead of ordering new ones?

Also, what is the status on the bases, the washers and the cups?

Thanks.

Regards,

Mary Milkey
phone: (508) 236-2421
pager: (508) 236-1010 #3299
fax: (508) 236-2328
email: m.milkey@email.mc.c.c.com

From: Foster, Barbara
Sent: Tuesday, May 04, 1999 4:13 PM
To: Milkey, Mary-Jean
Cc: Haynes, John; McGuirk, Andy; Douglas, Charles; Walsh, Thomas; Kitch, Paul; O'Neill, Ed; Spencer, John; Walsh, Thomas; Mendonca, Helio; Gildes, Robert; Nicholls, Winston
Subject: 77PSL2-1 (F2VY 9F924 A) Ford Service Part

Mary,

I have spoke with Ford Service. They have scheduled 50,000 devices to be shipped week of 5-10-99. I told them that we have all the players in place, and we are expecting to have all the devices ready to ship by Friday 5-14-99. She did not know at this time what the requirements will be after this 50K. She is thinking it will be 25-50K per week, but will probably not know until Friday, 5-14. Amy did mention that the total number of devices that will be ordered may reach 300K before all is done.

I have checked with Julie on the 3 components that she is short on, and she has confirmed that all the material will be in house to meet our goal. The three part numbers are 27713-1 (gold cup), 46515-2 (base), and 74078-143 (transfer pin).

Julie and I contacted the disc department and gave them a "heads up" that you will be piloting tonight, and ordering the discs tonight or tomorrow.

Just to ease the tension, I did ask if we would be hit for late deliveries if we did not get the whole 50K out the door next Friday. The answer was, no. Because of this being for a recall, it will not effect our performance.

Please keep me advised on your progress, in order to help me keep Ford updated.

Thanks,
Barbara

Currey, Pat

From: Fred Porter (a0186587@dsbmail.itg.ti.com)
Sent: Wednesday, May 05, 1999 6:31 PM
To: McGuirk, Andy
Subject: 77PS

Did you send this to me by mistake? I don't recognize this part number.
(77PS?)

Regards,
Fred Porter - DEAR Planning
f-porter@ti.com
972-995-9306 (office)
972-598-4111 (pager)

-----Original Message-----

From: McGuirk, Andy (mailto:a-mcguirk@emall.mc.ti.com)
Sent: Wednesday, May 05, 1999 6:51 AM
To: Porter, Fred
Subject: FW: 77PS

WE ARE EVEN BUILDING THE RIGHT STUFF !!!!!

A

AUTOMOTIVE SENSORS AND CONTROLS QA MANAGER
34 FOREST ST M/S 23-03
ATTLEBORO, MA 02703
TEL : (508) 236-3080
FAX : (508) 236-3745
MOBILE: (508) 208-6119
PAGE: (800) 467-3700 PIN 604-2044

From: Foster, Barbara
Sent: Tuesday, May 04, 1999 5:10 PM
To: Dague, Bryan; Gildes, Robert; Milkey, Mary-Juan; Haynes, John;
Pombo, Julie; Martin, Scott
Cc: McGuirk, Andy; Pechodis, John
Subject: REL-77PS

Team,

This is to confirm that the 92-93 Town Car used our 778SL2-1 which was / is
a snap switch.

Regards,

Charlie

Charlie Douglas
(508) 236-3657 (P)
(508) 236-1598 (F)
c-douglas2@ti.com

From: McGuirk, Andy
Sent: Tuesday, May 04, 1999 12:12 PM
To: Haynes, John; Douglas, Charles; Pechonis, John
Cc: Dague, Bryan; Baumann, Russ; Sharpe, Robert; Rowland, Thomas
Subject: FW: (U) Clarification

SEVERAL KEY POINTS HERE.....

FORD WANTS THE EXACT SAME SWITCH AS WAS IN '92-'93 TOWN CARS... I
THINK THAT WAS OUR SNAP SWITCH.

THEY ARE GETTING ALL CONFUSED BECAUSE THEY 'SEE' THE PART ON
PROPORTIONAL VALVE AND ARE LOST IN THE PARTS TRANSLATIONS.

Scott,

Ford has confirmed they still want 77PSL2-1 and are putting 50K on schedule
for week of 5-10 ship. They are using their existing purchase order. You
should see the requirement in the AM, once the EDI Feed runs.

From: Martin, Scott
Sent: Tuesday, May 04, 1999 1:01 PM
To: Dague, Bryan; Gildes, Robert; Milkey, Mary-Jean; Haynes,
John; Pombo, Julie
Cc: Foster, Barbara; McGuirk, Andy; Pechonis, John
Subject: RE: 77PS

All,

Bryan would like to refer to the PO for this answer, I agree with
him.

John H.,

Have we received the PO yet? What part number(s) should we be
building?

TI-NHTSA 018904

Regards,
-Scott
phone: (508) 236-3434
pager: (508) 236-1010 #0929
fax: (508) 236-2328
e-mail: smartin1@ci.com

From: Martin, Scott
Sent: Tuesday, May 04, 1999 2:09 PM
To: Cague, Bryan
Cc: Gildea, Robert; Milkey, Mary-Jean; Haynes, John; Pombro,
Julie; Pachonis, John
Subject: 77PS

Bryan,

In regards to the 77PS rebuild, is it the 77PSL2-1's we should be rebuilding? Please confirm.

Thanks-

Regards,
Scott
phone: (508) 236-3434
pager: (508) 236-1010 #0929
fax: (508) 236-2328
e-mail: smartin1@ci.com

Epstein, Sally

From: Gildes, Robert (rgildes@earthlink.net)
Sent: Thursday, May 06, 1999 3:48 PM
To: Proia, Stephen; Milkey, Mary-Jean; Martin, Scott; Mulligan, Sean; Watt, Jim; Dague, Bryan
Cc: Pachonis, John; McGuirk, Andy; Benninghaus, Steven
Subject: 77PSL2-1



The attached file is what I plan on using for pre-launch control plan for the building of the replacement 77PSL2-1's. We have already started to build some devices so if anyone has any comments or suggestions please let me know ASAP.

<<77PSL2-1>>

Regards,

Bob Gildes
Phone: (508) 236-2023
Fax: (508) 236-3588
email: rgildes@ti.com

77PSL2-1 Pre-Launch Control Plan

- Pilot 24 pieces
 - Normal piloting procedures
 - Impulse (3) devices
 - Function Test (4) devices
- Build Sensors
 - Increase SPC on the Kapton stations from once every 4 hours to once every hour
- Build Final Devices
- 100% Function Test
 - Actuation
 - Release
 - Creep
 - Millivolt Drop
- Leak test full devices
 - First lot 100% - 2000 pcs
 - 10 pieces from each subsequent tote of 200 pcs - 100 pcs / lot
 - Total tested for first 50,000 pcs = 4,400 pcs
- 200% visual inspection for correct base and export
 - Done at Pressure Test and Packing
- Inspect 10 pcs from each box at packing with mating connector
- Inspect 10 pcs from each box at packing with 3/8"-24 go/no-go ring gauge and torque wrench set at 4.5 in-lbs.

TI-NHTSA 018907

Epstein, Sally

From: McGuirk, Andy [a-mcguirk@gmail.mc.ll.com]
Sent: Sunday, May 06, 1999 8:36 PM
To: Oemera, Richard
Cc: Gildes, Robert; Watt, Jim; Sunderam, Sunder
Subject: FW: 77PSL2-1



be sure we do impulse testing too as a sample

From: Gildes, Robert
Sent: Thursday, May 06, 1999 4:49 PM
To: Preis, Stephen; Milkey, Mary-Jean; Martin, Scott; Mulligan, Sean;
Watt, Jim; Daque, Bryan
Cc: Peckonis, John; McGuirk, Andy; Beringhouse, Steven
Subject: 77PSL2-1

The attached file is what I plan on using for pre-launch control plan for the building of the replacement 77PSL2-1's. We have already started to build some devices so if anyone has any comments or suggestions please let me know ASAP.

<<77PSL2-1>>

Regards,

Bob Gildes
Phone: (508) 236-2023
Fax: (508) 236-3586
email: rgildes@ti.com

77PSL2-1 Pre-Launch Control Plan

- Pilot 24 pieces
 - Normal piloting procedures
 - Impulse (5) devices
 - Function Test (4) devices
- Build Sensors
 - Increase SPC on the Kapton stations from once every 4 hours to once every hour
- Build Final Devices
- 100% Function Test
 - Actuation
 - Release
 - Creep
 - Millivolt Drop
- Leak test full devices
 - First lot 100% - 2000 pcs
 - 10 pieces from each subsequent lots of 200 pcs - 100 pcs / lot
 - Total tested for first 50,000 pcs = 4,400 pcs
- 200% visual inspection for correct base and hexport
 - Done at Pressure Test and Packing
- Inspect 10 pcs from each box at packing with mating connector
- Inspect 10 pcs. from each box at packing with 3/8"-24 go/no-go ring gauge and torque wrench set at 4.5 in-lbs.

Curry, Pat

From: Dague, Bryan [bdague@ornl.mot.com]
Sent: Tuesday, May 11, 1999 12:24 PM
To: Czara, David; Charbonneau, Tom; Sellers, Matthew MTS2
Cc: Beringhouse, Steven; McGuirk, Andy
Subject: 77PS history??

Guy,

I have tried to contact most of you by phone, but little success.

I am looking for some information on the 77PS2-1. Specifically, I am trying to understand the change we made in the fall of 1991 to our crimping process. Ford is asking for details on the change from the manual crimp process to the production crimp process. I have located some test reports that indicate early diaphragm failure may be a result of poor crimping -- very incomplete information. I am trying to understand the physics and the manufacturing details of this change.

Please contact me to discuss, and hopefully our chat will spark something in your memory that may help resolve this issue.

Regards,
Bry

Curry, Pat

From: Sellers, Matthew [msellers@mail.mc.ti.com]
Sent: Tuesday, May 11, 1999 2:14 PM
To: Dague, Bryan
Cc: Beringham, Steven; McGuirk, Andy; Czara, David; Charboneau, Tom
Subject: RE: 77PS history??

Brian,

You're really testing the memory. Steve Offiler was the design engineer at the time. I'd suggest you try to find some of the original 80's to Ford, but I don't think this was ever a field issue...only a lab failure issue which was judged more stringent than field exposure.

Another point is that the L2-1 was a passenger car (low pressure, low disc/kapton throw version) and I don't remember that the kapton durability issue was associated with this version. The light truck L2-3 was a higher pressure, higher disc/kapton throw version and this (I believe) was where the problem was focused.

I'll make another point about the ES specification at the time. The original Ford product was a 57PS based product. We launched with this for early SOP. We converted to the 77PS version mid year and as I recall the ES specification for cycle life was more stringent for the 77PS version than for the 57PS version. Why? I remember there was some confusion and maybe part of the fix for FV test failures was to negotiate a specification change to match the capability proven by weibull analysis testing. Also remember that we later changed to the "quiet" snap versions L3-1 and L3-3...which had a positive impact on Kapton durability because the disc throw was significantly diminished.

What was done in manufacturing to fix the problem? I'll talk about crimp process improvements below. Some are true, robust improvements, while others are softer fixes.

I recall that the crimping issue was brought up during failure analysis. Design engineering located a tear drop shape bubble on the kapton post crimp that was not present pre-crimp. It was thought that the discontinuity on the surface could act as a stress concentration point during cycling ultimately leading to tearing/leakage. The "hand" crimp process you are talking about I believe was the old 57PS manual assembly line...however, the crimper was identical to the automated AMI # 2 crimper. We performed analysis of the crimp processes and found no significant differences.

I recall that we made the following changes to the AMI # 2 crimper during this time: --

- * Rebuilt all nests and improved crimp die and nest alignment with a new set-up tool. This reduced non-concentricity issues which created non-round sensors after crimp. The non-uniform crimp was thought to contribute to the bubble effect.
- * Re-conditioned all Mac valves and air management components. We found lots of built up contamination in the valves which retarded the pressure profile. We couldn't achieve full crimp force because the contamination caused delay. We also installed an RM check procedure to re-confirm the pressure profile periodically to a standard profile collected after we made the improvements.

Well...this is what I remember from the top of my head. If you can produce some 8D's or other corrective action documents maybe I'll remember more detail.

Regards,
Matt

From: Daque, Bryan [SMTP:odaquest@mail.mc.ti.com]
Reply To: Daque, Bryan
Sent: Tuesday, May 11, 1999 1:23 PM
To: czarn, david; charbonneau, thomas; sellers, matthew mjs2
Cc: beringhouse, steven; mcquirk, andrew
Subject: "7782 history?"

-MSG NO= 481583 FR=DAGU TC=MJS2 SENT=05/11/99 12:23 PM TYPE=N
R#-032 ST=C DIV=0050 CC=00357 BY=DAGU AT=05/11/99 12:23 PM

To: czarn, david <d-czarn@mail.mc.ti.com>
charbonneau, thomas
<t-charbonneau@mail.mc.ti.com>
sellers, matthew mjs2
Copy: beringhouse, steven
<stberinghouse@mail.mc.ti.com>
mcquirk, andrew
From: Daque, Bryan <odaquest@mail.mc.ti.com>
Subj: 7782 history??

Guys,

I have tried to contact most of you by phone, but little success.

I am looking for some information on the 7782-1. Specifically, I
am trying
to understand the change we made in the fall of 1991 to our crimping
process. Ford is asking for details on the change from the manual
crimp
process to the production crimp process. I have located some test
reports
that indicate early diaphragm failure may be a result of poor
crimping --
very incomplete information. I am trying to understand the physics
and the
manufacturing details of this change.

Please contact me to discuss, and hopefully our chat will spark
something in
your memory that may help resolve this issue.

Regards,
Bry

Currey, Pat

From: DeMattia, Mike [m-demattia@email.mc.ti.com]
Sent: Wednesday, May 12, 1999 7:27 AM
To: Hall, Alison; Spencer, John
Cc: McGuirk, Andy; Sharpe, Robert; Johnson, Alan; Bredikin, Ted; Greenbaum, Arnold; Tourangeau, Ray; Chamburkar, Yogen; Pawlowski, Robin; Foster, Barbara; Storch, Doreen; Perry, Lorraine
Subject: RE: John Rentis - STA requests formal feedback on supplier code maintenance

I believe John's suggestion is the prudent approach.

Further Alison, we may need to rely on your expertise to help train the new Material Management organization. With Beth's departure, the Ford Delivery Rating Performance responsibility within the ABU is no longer "centralized" (it was through Beth), but scattered with different Material Management supervisors. I believe you are now the "subject matter expert" & we will need your leadership to bring our newly configured organization up to speed.

Thanks for your help & support.
Regards

Michael De Mattia
e-mail: demattia@e-mail.mc.ti.com
Phone: 508-236-5226 Fax: 508-236-5246

From: Spencer, John
Sent: Tuesday, May 11, 1999 3:58 PM
To: Hall, Alison
Cc: McGuirk, Andy; Sharpe, Robert; Johnson, Alan; Bredikin, Ted; DeMattia, Mike; Greenbaum, Arnold; Tourangeau, Ray; Chamburkar, Yogen; Pawlowski, Robin; Foster, Barbara; Storch, Doreen; Perry, Lorraine
Subject: RE: John Rentis - STA requests formal feedback on supplier code maintenance

Alison,

Barbara Foster and I had discussions this morning concerning your requested conference call with Mr. John Rentis. I wish to delay discussions with Mr. Rentis until next late next week. Andy McGuirk is currently in Mexico this week. I would like the opportunity to discuss supplier code history with Andy and review any folders that Beth Haskell had on these issues. Additionally, I would like some additional time to formulate our responses to his concerns.

Please communicate to John that I look forward to meeting him in person at either his location or at TI.

John

Phone : 236-3713 Attleboro
236-5395 Mansfield
Pager: 508 391-3962

From: Perry, Lorraine
Sent: Monday, May 10, 1999 11:17 AM
To: Hall, Alison
Cc: McGuirk, Andy; Sharpe, Robert; Johnson, Alan; Bredikin, Ted; DeMattia, Mike; Greenbaum, Arnold; Tourangeau, Ray; Chamburkar, Yogen; Pawlowski, Robin; Foster, Barbara; Storch, Doreen;

Spencer, John
Subject: RE: John Rentis - STA requests formal
feedback on supplier code maintenance
Importance: High

I will be available in the morning on Friday for a
conference call from the following number 508-883-6536.

I am going into the office tomorrow and will pull the file
of our procedures that were presented during our probation exit review.

Lor

ps Our standard operating procedures, job descriptions and
customer manuals are what we use for documentation. I do not think we can
summarize these via e-mail and we can not send them out to John as they are
controlled documents. So, is he willing to come into the plant or can we
find a way to have him review these documents remotely?

From: Hall, Alison
Sent: Monday, May 10, 1999 10:20 AM
To: Foster, Barbara; Perry, Lorraine; Storch,
Doreen; Spencer, John
Cc: McGuirk, Andrew; Sharpe, Robert; Johnson,
Alan; Bredikin, Ted; DeMattia, Michael; Greenbaum, Arnold; Tourangeau, Ray;
Chenburkar, Yogen; Pawlowski, Robin
Subject: John Rentis - STA requests formal
feedback on supplier code maintenance
Importance: High

Please review this note below and advise by this
afternoon (per John's request) when we will be able to provide some level of
detail on the procedures. Additionally, will you advise whether you will be
available for a conference call this Friday as a team to discuss this with
John (and answer his questions)?

John Rentis, STA, is requesting detail and
formalized procedures for management of our Q1 supplier code sites for Ford.
Additionally, he has requested a copy of our documented procedures of what
our countermeasures are for approaching scores that are less than perfect
BEFORE they are firm in the Ford system. For example, the day we notice an
issue, what is our process and procedure? I have a an example one-page
sheet from John that shows how we may communicate our actions to improve
ratings below 100 points. I will fax this to the attention of Lorri and
Barbara for your review.

We informally discuss the details our team all had
already gathered, however he is looking for further details. Besides
procedures, he is requesting a blow-by-blow account of our performance on
our ratings for delivery, timeliness, FCSD, record maintenance, etc., AND
our steps to correct the issues for each supplier code.

John expressed some concern again about the erratic
nature of our scores for sites K9L1E and somewhat for A9H2E. He would not
want to see us fall back and head towards probation. He did advised one of
the cums was somewhat in the "danger" range recently (A9H2E7). He sees the
scores and performance delivered by K9L1A supplier code site as a benchmark
for the others.

As a side note, he advised that we are not receiving
"POINTS" for the MS-9000 compliance in the system, but he does see we have
earned our MS-9000 rating. He suggests we follow up on this with our
contact so that we receive the benefit of our achievement.

Advise of any questions,

Alison

Alison H. Hall

Texas Instruments

Phone: 248-305-5709

Fax: 248-305-5734

Douglas, Charles

From: Douglas, Charles
Sent: Wednesday, May 12, 1999 1:49 PM
To: Baker, Gary
Cc: 'Boach, Kara'; Breskin, Ted; Chankurkar, Yogan; Deque, Bryan; Downey, Mike; Haynes, John; Martin, Scott; 'Nakanishi, Kazu'; Nijenhuis, H; Pechonis, John; Prole, Stephen; Rahman, Aziz; Scudder, Walter; 'Sak, Sang-Hak'; Tarrance, Ray; Watt, Jim
Subject: Bi-weekly Power Steering / Transmission Highlights

77PS / Lincoln Town Car

We are being asked to provide 200ku 77PSL2-1's by mid June to support recall campaign to be announced by Ford. While we have a purchase order to cover these 200ku devices, given that proposed fix of replacing switch only is really not a solution to problem, there would appear to be some nominal level of risk that Ford could change direction after we have completed build. Implication of this event occurring is that neither TI or Ford would have an outlet for the 200ku devices as 77PSL2-1 is no longer a production device.

88PSF3-2 / Zua

Made final shipment with phenolic base devices last week. Excellent coordination by all functional areas has resulted in zero obsolescence associated with changeover to PPS base which will occur with shipment this week. We have all necessary supporting documentation from Zua (P.O., updated print, etc) to make changeover.

TR8 INI

Will be presenting TI proposal for material system modification as a result of extensive DOE testing to Ford engineering on Thursday. Excellent effort by engineering and quality teams in putting together technical support package as part of SREA for TI recommendation. Tied to SREA's, our commercial proposal will include TI absorbing the unit cost associated with material changes in return for a two year dry period (8/1/99 - 8/1/01) on further TCM reductions. In addition, as part of proposal, we are reducing CY99 overall TCM commitment from 4% to 2.5% and we are asking Ford to fund tooling charges associated with material changes. In preliminary discussions with Ford buyer, overall framework for our proposal was reasonably well received.

GMPT 66PS

Will be providing formal quotation to GM by no later than Friday for increasing capacity of 66PS line from current contractual obligation of 10ku / day to 11ku and 12ku / day. Volume ramp is expected to be somewhat linear during MY00 - MY01 timeframe and will include capacity addition from GM Ramos plant as well as planned capacity expansions at both Ramos and Toledo plants. While no piece price action will result from expansion, we will ask GM for significant tooling participation (on the order of \$175K to expand line capacity to 12ku / day).

Interesting note from 66PS visit centered around discussion on care-about's for any next generation (i.e. 66PS) PSM development. One of critical metrics for measuring performance of individual PRE's (product release engineers) at GM centers on warranty. As 66PS currently is number 3 on 4L80E warranty list, it is easy to understand why Roger Combs in particular would have incentive to resource 66PS to Fasco. Also, gained insight into exactly what sealed means to GM and in simple terms it means dropping warranty level on 66PS to that associated with 66PS / 67PS.

GMPT 66PS

Hosted relatively positive visit from Bill Irani and Roger Combs on Tuesday last week as part of diagnostic journey to gain insight into why GM Windsor plant is having a high incidence of bent terminal pins on 66PS. GM conclusion from visit was that they did not see any way in which problem could be occurring at TI though they did ask TI to for continued participation in diagnostic journey via visit to Windsor plant -> Yogan and Arnie visited Windsor last Thursday and a detailed visit report was generated.

GMPT 67PS Decontaminated Design

Good work by engineering team in generating a number of different design options for single switch design. We have to provide a verbal ballpark to Roger Combs this Friday and follow up with a formal quote no later than May 28th. Initial ballpark will be range covering what we currently perceive as realistic to worst case possibilities.

Plans: May 13th, TRS TNI visit to Ford
May 27th, Visit to GMPT buyer Ron Ham
Week of June 21, Tentative Power Steering Segment Meeting
Week of June 21, Tentative GMPT Engineering / Purchasing visit to TI

Charlie

Charlie Douglas
(508) 238-3467 (P)
(508) 238-1598 (F)
c-douglas2@ti.com

Currey, Pat

From: Foster, Barbara [bfoster@email.mc.ti.com]
Sent: Thursday, May 13, 1999 9:35 AM
To: Douglas, Charles
Cc: Martin, Scott; McGuirk, Andy; Milkey, Mary-Jean; Gildea, Robert; Pechonis, John; Spencer, John; O'Neill, Ed
Subject: 77PSL2-1

Charlie,

The order for 200K pcs. of subject part number has been entered in the system. The first 50K should be ready to ship tomorrow. 30K a week will follow for the next 5 weeks.

Hollingsworth had asked them to be shipped UPS, but in checking with Al St.Martin, it would cost them about \$2400.00 in shipping costs. I called them to alert them of that, and they changed their carrier to Roadway. They thanked TI for taking the time to watch their freight costs.

The order also asked that we send a 2 pc. sample, a PSW, Nafta and Blueprint within 48 hours of receipt of order. With Bob Gildea's help, we shipped everything required to them last night (8 Hours after receipt of order). They will have samples this morning.

So far, Hollingsworth is very impressed with TI.

Barb

HIGHLIGHTS

Downey, Mike

From: Downey, Mike
Sent: Thursday, May 13, 1999 1:49 PM
To: Rowland, Thomas
Cc: Baker, Gary; Charboneau, Tom; Pechonis, John; Tourangeau, Ray; Springhouse, Steven; Strott, Doug; McGuirk, Andy; O'Neill, Ed; Brakoma, Geert; Tanaka, Takeshi; Creighton, Chris
Subject: Marketing Highlights for Period Ending 14 May 99

Air Conditioning Segment

Hutchinson / Parker - The APT team is in TMX this week with Hutchinson for a 2nd PSO audit following the March trip. The assessment so far is "fair" but improved from the March visit. Chrysler will be going down w/o 6/7 for the final audit, and from this meeting are looking forward to receiving MY00 approval for TMX CSE's.

Visteon - We understand we have received engineering endorsement as the CCS supplier of the future. As a result we expect in the near term to meet with SBU Manager Chris Filipowicz to discuss pricing, funding and other program related issues. We expect Mr. Filipowicz has assumed the role as the final decision maker, making the meeting with her critical to the sourcing outcome. TSY = \$8 M.

DaimlerChrysler - we continue to see incremental moves towards VOV acceptance at DC. Chrysler's Test Lab group visited TI last Friday to review our equipment to become grounded in what is required to test VOVs that are assembled in liquid lines. Also, WJGOC, which is satisfied with VOV performance and plans to launch with it later this month, has called an internal meeting (with other DC platforms) for June 2 to show their results of VOV development. The meeting is extremely important as it tends to put in doubt WJ's claims about the VOV performance.

Powertrain Market Segment

IMS - From Bill Iran's and Roger Combs's IMS visit last week we learned that the IMS will be fanned out across all the 4T65E transmissions by MY02 with ramp up volume to start with MY00; long term, this represents about 900 ku and \$2.8 M upside relative to LRP. In order to meet these volumes some modifications and additions will have to be made to the assembly line. GMPT indicated that these modifications should be in place by the summer of '00. We have begun the process of preparing cost estimates for the modifications in addition to ensuring the supply chain will be in ready to support these additional volumes.

We also learned from Bill that the IMS line is definitely in the top third of his product responsibility for customer satisfaction while the PSM line is in the bottom third. Roger Combs added that he wished all lines had as few issues as the IMS line.

PSM - Received a GM RFQ for increasing capacity of 65PS line from current contractual obligation of 10ku / day to 11ku and 12ku / day due to continued and anticipated strength in truck sales. Volume ramp is expected to be somewhat linear during MY00 - MY01 timeframe and will include capacity addition from GM Ramos plant as well as planned capacity expansions at both Romulus and Toledo plants. While no piece price action will result from expansion, we will ask GM to share in the funding required expansion on the order of \$175K to expand line capacity to 12ku / day. The extra 2k per day equates to approximately \$3 M per year not currently captured by the LRP.

NPS - Aziz and Mike visited with key European players in this market and continue to receive pull from the marketplace that inductive technology could be the best long term solution for inside the transmission position sensing. Tier 1 suppliers, notably Siemens and Bosch, will be our important customers. Siemens indicated it will revise its module design and potentially its supply chain to support anticipated volume demand linked to the Ford-ZF joint venture, with a potential source decision for these opportunities to be made in Jan 00.

HVOR

SIEMENS V110 - This program continues to pose potentially significant challenges and risks for us. After our meeting with Siemens two weeks ago we provided at its request a written response on T&C's based on inputs from our legal group, TIH, and Michael Hammerl (TI SC Global Mgr for Siemens account). Our response was met with strong disappointment and Siemens has indicated there will be NO negotiation on T's&C's, adding that our exceptions could jeopardize a favorable sourcing decision. They have also inserted additional demands for commercial concessions and even noted our "acceptance" of other criteria that we clearly stated during our meeting and in follow-on correspondence we could not accept. We have contacted the Siemens US program mgr to help sort this out and will likely need a mgt level discussion at Siemens in the very near future.

Power Steering Segment

77PS / Lincoln Town Car - We are being asked to provide 200ku 77PSL2-1's by mid June to support a recall campaign to be announced by Ford. This proposed solution of replacing only the switch is really not a solution to any problem and, even though we have a purchase order to cover this volume, there would appear to be some nominal level of risk that Ford could change direction after we have completed build. Since this part number is no longer a production device neither TI nor Ford would have an outlet for the 200ku devices if the direction is changed and the order is cancelled.

Regards,

Mike Downey for Gary Baker

Currey, Pat

From: Proia, Stephen [s-proia@email.mcc.ti.com]
Sent: Saturday, May 15, 1999 6:20 AM
To: Beringhouse, Steven; Proia, Stephen; Balthazar, Claire; Harrop, Lou; Rose, Elaine
Cc: Pechonis, John; Dague, Bryan; McGuirk, Andy
Subject: RE: 77PS - '92 Impulse data

Importance: High

Update:

I just went through the first (4) boxes received from the warehouse. There was nothing close to the '92 timeframe.

Box #	Description in Box
1282C	4/94-8/94: 77PS Pilot Info
1282J	11/93-12/95: 89PS PM Sheets/Route Sheets
1282V	10/93-12/94: 89PS Lot reports
1288C	1/94-7/94: 52PS Route Slips

When selecting these boxes the only description that was accurate with respect to actual device family was the first box. The other box descriptions were more general (ie: 1282J - PM Sheets vs. 89PS PM Sheets). Of the (6) page Inventory summary report from DSC (for CC149 only), these were the oldest dates with relation to the products of interest. Any other suggestions.

Louise/Elaine,

Was CC149 the only cost center that we would have stored HPS material under? Should we try other numbers (ie: 148, 291, etc, etc.). Please let me know.

Claire,

You mentioned yesterday that we typically combined our pilot route sheets with the impulse data. Is this correct? If so could you take a look in box 1282C (at your desk) and see if this is still a valid assumption. In looking through the data, all I found was disc data, production data results. Thanks.

Regards,

Steve

From: Proia, Stephen
Sent: Friday, May 14, 1999 6:58 AM
To: Beringhouse, Steven
Cc: Pechonis, John; Dague, Bryan
Subject: 77PS - '92 Impulse data

Steve,

I put a request in last night with DSC (Milton Whse) for 3-4 boxes of data falling around the '92 timeframe. I would expect to have these boxes in the AM timeframe. Based on the inventory list provided for CC149 there were no specific dates for '92 nor were there any boxes in the this timeframe with the description "77PS". I will contact Elaine again this morning to see if there was another cost center that 77PS would have fallen under. Gut feel is that CC149 is the only one.

I will be in around 8:00 AM this morning due to an appointment. If you need me please page #1376. I'll have a cell phone.

Regards,

Steve

Currey, Pat

From: Proia, Stephen [s-proia@email.mc.ti.com]
Sent: Monday, May 17, 1999 5:51 PM
To: McGuirk, Andy; Beringhouse, Steven
Cc: Pechonis, John; Dague, Bryan; Balthazar, Claire; Rose, Elaine
Subject: RE: 77PS - '92 Impulse data

I have (16) boxes coming tomorrow in or around the 91/92/93 timeframe.
Nothing specific for impulse testing but some with the 77PS description.
Wish me luck.

Claire/Elaine,

I'll need your assistance tomorrow morning to sort through this stuff.
Thanks.

Regards,

Steve

From: McGuirk, Andy
Sent: Saturday, May 15, 1999 6:58 PM
To: Proia, Stephen
Subject: RE: 77PS - '92 Impulse data
Importance: High

oh, yes.....

cc 148 was inspection.

try there

a
AUTOMOTIVE SENSORS AND CONTROLS QRA MANAGER
34 FOREST ST M/S 23-05
ATTLEBORO, MA 02703
TEL : (508) 236-3080
FAX : (508) 236-3745
MOBILE: (508) 208-6119
PAGE: (800) 467-3700 PIN 604-2044

From: Proia, Stephen
Sent: Saturday, May 15, 1999 7:19 AM
To: Beringhouse, Steven; Proia, Stephen; Balthazar, Claire;
Harrop, Lou; Rose, Elaine
Cc: Pechonis, John; Dague, Bryan; McGuirk, Andy
Subject: RE: 77PS - '92 Impulse data
Importance: High

Update:

I just went through the first (4) boxes received from the warehouse.
There was nothing close to the '92 timeframe.

Box #	Description in Box
1282C	4/94-8/94: 77PS Pilot Info
1282J	11/93-12/95: 89PS PM Sheets/Route Sheets

TI-NHTSA 018923

Currey, Pat

From: Sharpe, Robert [rsharpe@email.mc.ti.com]
Sent: Tuesday, May 18, 1999 1:23 PM
To: McGuirk, Andy
Cc: Beringhause, Steven
Subject: 77PS

Hi Andy,

I just spoke with Fred and confirmed tomorrow's 2pm meeting. I will attend and would like you/Steve available via phone conference (please confirm the phone# which we should call). Fred stated today that we should be prepared to discuss the status of our investigation regarding manufacturing as this is the path that Ford "has really settled into".

Fred has also requested that STA John Rentis visit Attleboro to audit/review Ford's manufacturing concerns. I also spoke with John Rentis and he confirmed that he had spoken with Fred but did not seem to have much background into this issue. John asked me to meet with him at 1:00pm this Thursday (5/20) to help fill in the gaps. I'm O.K. with the background up to the point where Ford's focus went to a manufacturing issue. I will want to talk to you directly either tomorrow afternoon or Thursday a.m. in preparation for my meeting at 1:00 with Mr. Rentis. (I also have another meeting scheduled with John on Friday, 5/21, to discuss TI supplier ratings and give a TI "overview" - This meeting was scheduled last week, prior to Fred contacting the STA group, as Mr. Rentis is new to TI).

For your reference,

John S. Rentis
Engineer
Supplier Technical Assistance
Ford Automotive Operations

Quality, Manufacturing, & Purchasing
17101 Rotunda Drive, MD610
Dearborn, MI 48121

Tel: (313) 337-5627
Fax: (313) 390-3449
jrentis@ford.com

Best Regards,

Rob Sharpe
Texas Instruments
Phone (248) 305-5729
Fax (248) 305-5734
rsharpe@ti.com

Epstein, Sally

From: McGuirk, Andy [a-mcguirk@email.mc.tl.com]
Sent: Tuesday, May 18, 1999 4:02 PM
To: Baumann, Russ
Cc: Watt, Jim; Proia, Stephen; Rowland, Thomas
Subject: FW: 77PSL2_1.xls



we found some records.....thanks steve et al.

looks very very good as a 'leak' story in statistical terms
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!.

jim watt, pls reviewand be sure the qty is in accord to ea test
spec.....and other details like that

a

AUTOMOTIVE SENSORS AND CONTROLS QRA MANAGER
34 FOREST ST M/S 23-05
ATTLEBORO, MA 02703
TEL : (508) 236-3080
FAX : (508) 236-3745
MOBILE: (508) 208-6119
PAGE: (800) 467-3700 PIN 604-2044

From: Proia, Stephen
Sent: Tuesday, May 18, 1999 4:21 PM
To: Beringhouse, Steven
Cc: McGuirk, Andy; Pechonis, John; Daque, Bryan
Subject: 77PSL2_1.xls

<<77PSL2_1.xls>>
Steve,

I've summarized the data per our discussion. I have also reviewed the files
in marketing without success. Please let me know if you need anything else.

Regards,

Steve

TI P/N: 77PSL2-1
Ford P/N: F2VC-9F924-AB

<u>Date</u>	<u>Lot</u> <u>Size</u>	<u>Qty</u> <u>Impulse</u> <u>Tested</u>	<u>Qty</u> <u>Pass</u>	<u>Qty</u> <u>Leak</u>	<u>Comments</u>
26-Nov-91	4,000	10	10	-	
26-Nov-91	4,000	10	10	-	
5-Dec-91	4,000	10	10	-	
5-Dec-91	4,000	10	10	-	
9-Dec-91	4,000	10	10	-	
9-Dec-91	2,000	5	5	-	
11-Dec-91	4,000	10	10	-	
11-Dec-91	4,000	10	10	-	
13-Dec-91	4,000	10	10	-	
14-Dec-91	4,000	10	10	-	
16-Dec-91	4,000	10	10	-	
16-Dec-91	4,000	10	10	-	
2-Jan-92	4,000	10	10	-	
6-Jan-92	4,000	10	10	-	
7-Jan-92	2,000	5	5	-	
8-Jan-92	4,000	10	10	-	
8-Jan-92	4,000	10	10	-	
14-Jan-92	4,000	10	10	-	
14-Jan-92	4,000	10	10	-	
15-Jan-92	4,000	10	10	-	
28-Jan-92	2,000	5	5	-	
31-Jan-92	4,000	10	10	-	
2-Feb-92	1,650	5	4	-	Broken spring
4-Feb-92	4,000	10	10	-	
5-Feb-92	4,000	10	10	-	
6-Feb-92	4,000	10	10	-	
10-Feb-92	4,000	10	10	-	
11-Feb-92	4,000	10	10	-	
12-Feb-92	4,000	10	10	-	
12-Feb-92	4,000	10	10	-	
14-Feb-92	4,000	10	10	-	
14-Feb-92	4,000	10	10	-	
14-Feb-92	4,000	10	10	-	
15-Feb-92	4,000	10	10	-	
24-Feb-92	4,000	10	10	-	
26-Feb-92	4,000	10	10	-	
26-Feb-92	4,000	10	10	-	
28-Feb-92	4,000	10	10	-	
28-Feb-92	4,000	10	10	-	
28-Feb-92	4,000	10	9	-	Continuity failure, terminal inside of base is not staked, Date code 2057. Sorted lot 100%.
6-Mar-92	4,000	10	10	-	

TI-NHTSA 018927

10-Mar-92	4,000	10	10	-
11-Mar-92	4,000	10	10	-
12-Mar-92	4,000	10	10	-
18-Mar-92	4,000	10	10	-
23-Apr-92	2,000	5	5	-
2-May-92	2,000	5	5	-
5-May-92	2,000	5	5	-
6-May-92	2,000	5	5	-
14-Sep-92	2,000	5	5	-
22-Sep-92	4,000	10	10	-
30-Sep-92	4,000	10	10	-
7-Oct-92	4,000	10	10	-
7-Oct-92	4,000	10	10	-
16-Oct-92	4,000	10	10	-
21-Oct-92	2,000	5	5	-
20-Oct-92	4,000	10	10	-
29-Oct-92	4,000	10	10	-
29-Oct-92	4,000	10	10	-
30-Oct-92	4,000	10	10	-
4-Nov-92	4,000	10	10	-
10-Nov-92	4,000	10	10	-
10-Nov-92	4,000	10	10	-
11-Nov-92	4,000	10	10	-
17-Nov-92	2,000	5	5	-
20-Nov-92	4,000	10	10	-
4-Dec-92	2,000	5	5	-
9-Dec-92	2,000	5	5	-
14-Dec-92	2,000	5	5	-
16-Dec-92	4,000	10	10	-
16-Dec-92	4,000	10	10	-
16-Dec-92	4,000	10	10	-
21-Dec-92	2,000	5	5	-
21-Dec-92	4,000	10	10	-

Totals	265,650	663	663	-
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TI-NHTSA 018928

Beringhouse, Steven

From: McGuirk, Andy
Sent: Wednesday, May 18, 1999 8:55 AM
To: Rowland, Thomas; Beringhouse, Steven; Pechonis, John
Cc: Sharpe, Robert
Subject: FW: Ford recalls 279,000 cars because of risk of cruise-control fires

these news reports provide an opportunity for me to demand audience with donovan et al as they reference 'defective' deactivation switches.

we continue on the path of a letter with design test result attachments that would be delivered to donovan by me as soon as thursday.

i will be drafting that note asap for your comments.

also, tom and i will meet with martha at 1 today to review the overall game plan. steve and john, pls continue on the path of meeting at 1 to review records we have at hand for the 91-92 period as well as prepare the line and story for an audit.

AUTOMOTIVE SERVICES AND CONTROLS ORA DIVISION
14 FOREST ST N/S 21-01
ATLANTA, GA 30303
TEL : (404) 215-3080
FAX : (404) 215-3745
MOBILE: (404) 208-8119
PAGE: (404) 417-3700 FAX 804-2044

From: Eggert, Val-Lorie
Sent: Wednesday, May 19, 1999 7:29 AM
To: McGuirk, Andy
Cc: Sullivan, Martin; Rowland, Thomas; Baker, Gary; Douglas, Charles
Subject: Ford recalls 279,000 cars because of risk of cruise-control fires

Ford recalls 279,000 cars because of risk of cruise-control fires

05/19/1999

Associated Press Newswire

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DEARBORN, Mich. (AP) - Ford Motor Co. has recalled 279,000 full-size cars because of a cruise-control switch that could short-circuit and cause a fire.

The recall affects the 1998 and '99 Lincoln Town Car, Mercury Grand Marquis and Ford Crown Victoria. About 10,900 of the recalled cars are in Canada.

There have been 147 reports of fires and two injuries attributed to the defect, Ford spokeswoman Karen Shaughnessy said Tuesday.

The automaker said it is still obtaining replacement switches. Until the switch can be fixed, customers should take their cars to their dealer and have the cruise control disabled, Ford said.

Business Brief -- FORD MOTOR CO.
Recall of 279,000 Vehicles
From '92 and '93 Is Planned

05/19/1999
The Wall Street Journal
(Copyright (c) 1999, Dow Jones & Company, Inc.)

Ford Motor Co., Dearborn, Mich., is recalling about 279,000 cars from the 1992 and 1993 model years to fix ~~defective~~ switches the company says could short-circuit and cause a fire. A Ford spokeswoman said it has received reports of two injuries related to the problem and 147 fires. Several owners have sued Ford, alleging cars caught fire when parked in garages, burning down homes. The spokeswoman said Ford isn't recommending owners park their cars away from buildings, however. Ford will replace the switch that deactivates the cruise-control system on the cars -- Lincoln Town Cars, Mercury Grand Marquis and Ford Crown Victorias -- free, once replacement parts become available next month. Meanwhile, Ford is asking owners to take their cars to dealers to have the existing switches disconnected. Ford declined to comment on the recall's cost.

Ralph Bear & Associates: Don't Park in Your Garage, Ford Owners Warned

05/18/1999
PR Newswire
(Copyright (c) 1999, PR Newswire)

WASHINGTON, May 18 /PRNewswire/ -- Owners of 1992 and 1993 Lincoln Town Cars, Mercury Marquis and Ford Crown Victorias should not park their cars in their garages or near other structures, warns Ralph Bear & Associates, an Arlington, Virginia auto safety consulting firm. "Ford and the government know about more than 100 of these cars that have caught fire while they are sitting with the motor off, many of them have been parked in garages with tragic results," Bear said.

Ford Motor Company has notified the National Highway Traffic Safety Administration that it will recall these cars but has not warned owners to keep their cars out of their garages or away from other structures until the recall work can be accomplished.

Some families who have lost their homes are suing Ford. Norman and Michael Jelly, two attorneys in Houston, Texas, represent three families who lost their homes when their Lincoln Town Cars caught fire. The cars were parked in their garages. The homes were severely damaged with substantial loss of personal property and disruption of lives. "These cars are rolling fire bombs," said Norman Jelly. "The problem is that they destroy houses and disrupt lives when they burn. It's only a matter of time before someone gets trapped in a house fire," he said.

Photographs of the burned cars and houses can be found on www.safetyforum.com

Contact: /CONTACT: Ralph Bear of Ralph Bear & Associates, 703-841-8384; or Norman Jelly, 713-237-8383, for Ralph Bear & Associates/ 10:17 EDT

Ford recalls '92-'93 full-size sedans to replace cruise-control switch

05/18/1999
Associated Press Newswire
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DEARBORN, Mich. (AP) - Ford Motor Co. said Tuesday that it would recall about 279,000 full-size sedans to replace a cruise-control switch that could short-circuit and create a fire.

The recall affects the 1992 and '93 Lincoln Town Car, Mercury Grand Marquis and Ford Crown Victoria sedans equipped with factory-installed cruise control. About 10,900 of the recalled cars are in Canada.

There have been 147 reports of fires and two reported injuries attributed to the defect, Ford spokeswoman Karen Shaughnessy said. No deaths have been reported.

Ford said in a statement that a potentially defective cruise control deactivation switch could short-circuit, which in turn could overheat and catch fire. A short also could disable the cruise control system and blow the brake light fuse.

The automaker said it is in the process of acquiring replacement switches; until then, customers will be asked by mail to take their cars to their dealer to have the cruise control disabled pending repair. The repairs will be made for free.

Additional information is available by calling Ford's customer service center at (800) 392-3673 or checking the company's Web site at www.ownerconnection.com.

Ford Announces Vehicle Campaign

05/18/1999

PR Newswire

(Copyright (c) 1999, PR Newswire)

DEARBORN, Mich., May 18 /PrNewswire/ -- Ford Motor Company (NYSE: F) is notifying owners of approximately 279,000 1992 and 1993 model-year Lincoln Town Car, Mercury Grand Marquis and Ford Crown Victoria vehicles equipped with cruise control of a voluntary safety recall involving the cruise control deactivation switch.

A defective cruise control deactivation switch may short circuit, creating the potential for overheating, smoke and possibly fire. A short also may disable the cruise control system or blow the brake light fuse.

Ford is in the process of acquiring replacement cruise control deactivation switches and connectors to repair customers' vehicles. Until replacement parts are available, customers are being instructed to take vehicles to dealers to have the electrical connector from the cruise control deactivation switch disconnected. This interim repair will also disable the cruise control.

Owners of affected vehicles will be notified by mail beginning the week of May 24. Customers may also contact Ford's Customer Assistance Center at 800-392-3673 or register at the company's OwnerConnection web site (www.ownerconnection.com) to find out if their vehicle is included in the recall.

Contact: /CONTACT: Karen Shaughnessy of Ford, 313-337-2786/ 14:30 EDT

Ford Recalls Some 1992-93 Sedans

05/18/1999

AP Online

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DEARBORN, Mich. (AP) - Ford Motor Co. will recall about 279,000 full-size sedans to replace a cruise-control switch that could short-circuit and create a fire.

The recall affects the 1992 and '93 Lincoln Town Car, Mercury Grand Marquis and Ford Crown Victoria sedans equipped with factory-installed cruise control. About 10,980 of the recalled cars are in Canada.

There have been 147 reports of fires and two reported injuries attributed to the defect, Ford spokeswoman Karen Shaughnessy said. No deaths have been reported.

Ford said in a statement that a potentially defective cruise control deactivation switch could short-circuit, which in turn could overheat and catch fire. A short also could disable the cruise control system and blow the brake light fuse.

The automaker said it is in the process of acquiring replacement switches; until then,

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customers will be asked by mail to take their cars to their dealer to have the cruise control disabled pending repair. The repairs will be made for free.

Additional information is available by calling Ford's customer service center at (800) 392-3673 or checking the company's Web site at www.ownerconnection.com.

Respectfully,

Val-lorie Eggert
Texas Instruments
Automotive Sensors & Controls
Market Research Specialist
Phone: 508-234-1112 / EGGY
Fax: 508-234-1598
veggert@ti.com

Pechonis, John

REDACTED

From: Mulligan, Sean
Sent: Thursday, May 20, 1999 9:12 AM
To: McGuirk, Andy; Beringhouse, Steven
Subject: Test Report Synopsis and testlog.

Please review the latest version of the Test synopsis and Test log.



synopsi.doc



TESTLOG.doc

Revised items on the Test Synopsis are highlighted in red. There have been minor changes throughout the document so it is worth skimming the entire document (esp. in light of recent developments).

The following items have been updated on the test log:
Test 14, 15a and 17.

Awaiting your feedback.

All the best,

Sean P. Mulligan

**Texas Instruments
Automotive Sensors & Controls
Mechanical Design
Phone (505) 236-2535
Fax (505) 236-3586**

Currey, Pat

From: McGuirk, Andy [a-mcguirk@email.mc.ti.com]
Sent: Thursday, May 20, 1999 1:07 PM.
To: Beringhause, Steven; Pechonis, John; Rowland, Thomas
Cc: Sharpe, Robert; Sullivan, Martha; Warner, Pam
Subject: draft of ford letter



Donovan_FORD52099.doc <<Tim Donovan_FORD52099_.doc>>

above is a rough draft..... pls review and comment c/o rob sharpe's e-mail
and i will incorporate into my meeting with Ford tomorrow.

1

JA 0189

Currey, Pat

From: McGuirk, Andy [a-mcguirk@email.mc.ti.com]
Sent: Thursday, May 20, 1999 1:07 PM.
To: Beringhouse, Steven; Pechonia, John; Rowland, Thomas
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Tin

Donovan_FORD52099.doc <<Tin Donovan_FORD52099_.doc>>

above is a rough draft..... pls review and comment c/o rob sharpe's e-mail
and i will incorporate into my meeting with Ford tomorrow.

ATTORNEY CLIENT PRIORITY INFORMATION

May 21, 1989

Mr. Tim F. Donovan, Manager
E/E Systems-Ongoing Prod. Dev.
E/E Systems Engineering
Building 5, Mail Drop 5017
20000 Rotunda Drive, Rm 1A043
Dearborn MI 48121-2053

Dear Tim,

I want to review our recent support of the Ford core team to assure we do not have any misunderstandings regarding our pressure switch performance and our contribution to the team.

For six months the Texas Instruments Automotive Sensors & Controls Team has been supporting the Ford Core Diagnostic Team with technical facts, data, and analysis regarding our brake pressure switch product applied in the Ford cruise control deactivation circuit.

A senior TI pressure switch engineer was in residence at Ford for three weeks to assist with switch related issues in the system diagnostic process. Senior TI leadership participation has also been involved in virtually every Ford Core Team meeting delivering facts, data, and technical support year-to-date '89.

Below is a very brief recap of activities leading us to several conclusions:

Dealer and salvage yard switch samples have produced several pressure switches with brake fluid leakage supporting a theory that switches were leaking in the field applications. There has been significant focus upon the Kapton seal system without concluding the cause of these brake fluid leakers. Certain switches evidenced wear-out due to exposure to many pressure cycles (we have theorized a vehicle application cycle quantity issue may be a factor).

Conclusion to date: Some switches exhibit end-of-life wear out and leak brake fluid thru the Kapton® diaphragm and appear to be "beyond life".

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We also investigated switch capability, and using agreed upon accelerated simulation life testing techniques, demonstrated the ability of the model year '82, '83, '84 Town Car brake switches to consistently exceed "cycle life specification" of 500,000 pressure cycles. TI Weibull reports of pressure switches tested in 1999 conservatively demonstrate 95% reliability to 1 million cycles (with confidence intervals greater than 50%) while success testing records of some 665 ES units shows zero leakage at 500,000 cycles during the 1991 - 1992 period (11/91 - 12/92).

Conclusion to date: 1992 period switches met specification. 1999 switch meets or exceeds specification

We have developed and delivered a model of accelerated plastic based Ignition resulting from fluid in the switch cavity coupled with the constant power application of the speed control circuit. This model was used to help define the containment and countermeasure programs in the Ford overall program. Theories from the model suggest that fluids in the switch cavity could corrode and might create a plastic base ignition path.

Conclusion: constant speed control power allows long term corrosion

We have been open, and forthright in our communications and delivery of information and we believe we have been instrumental in Ford addressing the underhood fire concern issue. We would like to continue our open, direct technical dialogue and not allow the relationship to take on a negative tone.

In this regard, we think it is appropriate at this point that our active participation in the diagnostic journey of the vintage 1992 product move towards a timely conclusion. In view of the recent discovery of 1992 test records which clearly demonstrate the product met specification we feel our contribution to further diagnostics appears limited and of diminished value.

Our prime focus at this time is in rapidly supplying Ford with 225,000 units in support of the field actions.

Regards,

Andrew C. McGuirk
GRA Manager
Texas Instruments

TI-NHTSA 018936

ACM/paw

C: Thomas E. Masters - Ford
Frederick J. Porter - Ford
Thomas Rowland - Texas Instruments
Steve Beringhouse - Texas Instruments

TI-NHTSA 018937

Epstein, Sally

From: Frois, Stephen [s-prois@email.mc.ti.com]
Sent: Thursday, May 20, 1999 1:49 PM
To: Beringhouse, Steven; Degue, Bryan; McGuirk, Andy
Cc: Pechonis, John
Subject: FW: L2-1 Yields



Steve,

Here is the '92 yield data you requested. Please review and get back to me with any questions. I have a meeting at 3:00 PM and should be back around 4:00.

Thanks.

Steve

From: Balthazar, Claire
Sent: Thursday, May 20, 1999 2:16 PM
To: Frois, Stephen
Subject: L2-1 Yields

Steve,

Here are the numbers for 1992. I saw no evidence of any major leak problems. If you look at the lot reports, you will see some failures in the leak category. If this number is divisible by 4 (if 1 leaks the tester aborts the test and calls them all bad) it usually means that a set of nests went through empty or there was a bad seal between the device and the machine. The devices would then be rerun separately one by one with other devices to identify the leaker if there was one. Kind of a process of elimination. The leak quantity on the lot report should be manually adjusted by the operator.

That is what should be happening but I can't guarantee it and it is probably not written anywhere on the specs.

<<77FSL2-1 Yields_1992.xls>>

Summary sheet is at the beginning.

Claire

77PSL2-1 Yields for 1992

Date	Tested	Good	%
January-92	14341	14209	99.1%
February-92	10589	10487	99.0%
March-92	28771	27880	97.3%
April-92	15827	15476	97.8%
May-92	12018	11135	92.7%
June-92	23443	23133	98.7%
July-92	11835	11673	98.6%
August-92	18535	18253	98.5%
September-92	11683	11562	99.0%
October-92	3838	3827	99.7%
November-92	0	0	0.0%
December-92	15839	15451	97.6%
Total	152478	149610	97.7%

TI-NHTSA 018939

Date	Tested	Good	%	Failure Modes		
January-82						
1/8	806	799	99.0%			
1/13	1208	1208	99.8%			
1/14	50	50	100.0%			
1/18	1748	1741	99.6%			
1/19	786	734	93.4%	cont 10	scr 20	ncr 22
1/25	52	52	100.0%			
1/19	31	31	100.0%			
1/14	44	44	100.0%			
1/18	48	48	100.0%			
1/14	48	48	100.0%			
1/8	62	51	98.1%			
1/8	52	48	92.3%			
1/14	52	51	98.1%			
1/14	52	52	100.0%			
1/25	80	80	100.0%			
1/14	84	84	100.0%			
1/14	212	209	98.6%			
1/25	236	234	99.2%			
1/14	284	284	100.0%			
1/8	304	299	98.4%			
1/13	378	375	99.7%			
1/14	398	398	100.0%			
1/13	501	499	99.8%			
1/25	718	711	99.3%			
1/25	884	884	100.0%			
1/25	958	955	99.7%			
1/14	1086	1082	99.7%			
1/8	1306	1278	97.7%			
1/18	1918	1914	99.9%			
Total	14341	14286	99.1%			

TI-NHTSA 018940

Date	Tested	Good	%	Failure Modes				
February-12								
2/1	52	52	100.0%					
2/1	671	668	99.6%					
2/1	248	248	100.0%					
2/1	466	466	99.6%					
2/1	444	442	99.5%					
2/1	316	316	100.0%					
2/1	184	183	99.5%					
2/1	48	48	100.0%					
2/1	1384	1382	99.9%					
2/4	1248	1199	96.1%	cont 6	ecor 3	echi 36	rihi 1	ricr 3
2/4	158	151	95.6%					
2/4	908	908	99.8%					
2/4	516	515	99.8%					
2/23	1429	1429	100.0%					
2/17	219	219	100.0%					
2/25	830	825	99.4%					
2/25	188	186	98.9%					
2/26	1086	1086	99.0%					
2/26	212	206	97.2%					
Total	18889	18467	98.0%					

Date	Tested	Good	%	Failure Modes			
March-82							
3/1	48	48	95.8%				
3/2	420	413	98.3%				
3/3	328	325	99.1%				
3/8	916	905	98.8%				
3/10	384	324	84.4%	achi 58	rlc 1		
3/10	872	748	85.8%	achi 145	dfhl 3		
3/11	282	291					
3/11	692	691					
3/11	256	255					
3/11	198	198					
3/11	428	425					
3/18	718	715	99.6%				
3/18	288	282	98.6%				
3/22	48	48					
3/22	148	147					
3/22	200	199					
3/22	616	613					
3/22	1400	1393					
3/23	578	573	99.8%				
3/23	140	139	99.3%				
3/23	1584	1558	99.5%				
3/23	220	218	99.1%				
3/23	758	745	98.2%				
3/23	292	288	97.9%				
3/24	304	303	99.7%				
3/24	632	623	98.3%				
3/28	1220	1213					
3/29	50	50	100.0%				
3/29	382	380	99.5%				
3/29	1378	1364	99.1%				
3/29	564	559	99.1%				
3/11	1811	1879	98.3%				
3/8	408	407	99.8%				
3/18	1380	1388	99.0%				
3/18	412	410	99.5%				
3/18	280	277	98.9%				
3/18	1724	1720	99.8%				
3/19	380	380	100.0%				
3/19	1032	1028	99.6%				
3/19	244	208	84.0%	achi 37	rlc 1	rlc 1	
3/19	338	333	99.1%				
3/31	456	455	99.8%				
3/31	1975	1982	99.8%				
3/31	331	276	83.4%	achi 55			
3/31	1361	1128	83.6%	achi 220	cont 1	rlc 1	
3/31	80	26	41.7%	cont 4	achi 7	rlc 1	rlc 7
3/31	278	223	80.8%	cont 8	achi 45		dfhl 11
Total	28771	27686	97.3%				

TI-NHTSA 018942

Date	Tested	Good	%	Failure Modes		
April-92						
4/20	118	118	100.0%			
4/1	1440	1433	99.5%			
4/1	488	488	100.0%			
4/20	418	368	87.8%			
4/20	368	333	90.5%	schl 35		
4/12	1276	1267	99.3%			
4/13	788	784	99.5%			
4/13	124	124	100.0%			
4/13	352	346	98.3%			
4/14	1000	884	88.4%	schl 114	door 1	door 1
4/21	396	393	99.2%			
4/21	212	211	99.5%			
4/21	545	547	99.6%			
4/21	28	26	92.9%			
4/21	1286	1267	99.3%			
4/21	380	368	96.8%			
4/21	212	207	97.6%			
4/21	400	400	100.0%			
4/21	548	543	99.1%			
4/27	488	493	99.4%			
4/27	212	212	100.0%			
4/27	1432	1387	97.6%			
4/27	212	211	99.5%			
4/27	388	382	98.5%			
4/27	884	854	96.6%			
4/27	380	358	94.2%			
4/28	296	293	99.0%			
4/28	792	775	97.9%			
4/29	384	376	97.9%			
Total	18827	18478	97.6%			

Date	Tested	Good	%	Failure Modes				
May-82								
5/5	419	381	90.9%	cont 3	accr 1	achi 1	ricr 20	
5/8	1428	1280	89.4%	cont 3	accr 1	achi 1	achi 14	ricr 147
5/11	1128	1015	90.1%	accr 5	achi 2	ricr 105		
5/11	200	183	91.5%	achi 1	ricr 18			
5/11	247	211	85.4%	achi 4	ricr 21			
5/11	51	51	83.6%	achi 1	ricr 7			
5/11	185	159	85.9%	achi 3	ricr 21	cont 2		
5/11	50	48	96.0%					
5/12	486	416	85.6%	achi 53	ricr 17			
5/12	136	126	92.0%					
5/14	584	552	94.9%					
5/14	348	320	92.0%					
5/25	1298	1239	95.4%					
5/25	338	271	80.7%	achi 17	ricr 48			
5/25	1538	1418	92.1%	cont 1	accr 1	achi 18	ricr 188	
5/28	132	132	100.0%					
5/28	152	152	100.0%					
5/28	1119	1117	99.8%					
5/28	702	700	99.7%					
5/28	904	901	99.7%					
5/28	104	102	98.1%					
5/28	80	80	100.0%					
5/28	124	123	99.2%					
Total	12018	11138	92.7%					

Date	Tested	Good	%	Failure Modes
June-92				
6/1	389	380	97.8%	
6/1	408	404	99.5%	
6/1	271	255	94.1%	
6/1	1384	1391	99.8%	
6/2	1026	1024	99.8%	
6/2	950	959	99.9%	
6/2	1583	1583	100.0%	
6/2	195	195	99.5%	
6/2	200	197	98.5%	
6/8	948	944	99.6%	
6/11	376	375	99.7%	
6/11	391	390	99.7%	
6/11	198	185	93.5%	
6/11	978	763	78.2%	
6/11	1278	1273	99.6%	
6/11	408	407	99.8%	
6/11	978	974	99.6%	
6/11	580	578	99.7%	
6/12	170	170	100.0%	
6/12	1044	1043	99.9%	
6/12	183	183	100.0%	
6/12	134	134	100.0%	
6/12	783	781	99.7%	
6/12	183	182	99.5%	
6/12	1252	1256	100.3%	
6/12	240	238	99.2%	
6/12	338	338	100.0%	
6/12	313	313	100.0%	
6/12	317	317	100.0%	
6/12	240	238	99.2%	
6/12	192	188	97.9%	
6/14	1438	1433	99.6%	
6/23	174	174	100.0%	
6/23	662	658	99.4%	
6/23	501	497	99.2%	
6/28	1186	1188	99.2%	
6/28	1128	1118	98.9%	
6/29	144	142	98.6%	
6/29	288	287	99.3%	
Total	23443	23133	98.7%	

TI-NHTSA 018945

Date	Tested	Good	%	Failure Modes
July-82				
7/20	640	631	98.6%	
	196	194	99.0%	
	1132	1119	98.9%	
7/6	815	779	95.6%	
7/15	357	355	99.4%	
7/14	696	685	98.4%	
	424	421	99.3%	
	682	685	99.0%	
	399	382	95.7%	
7/25	1360	1336	98.4%	
7/26	592	585	98.8%	
7/20	799	791	99.0%	
7/30	367	363	98.9%	
7/21	176	176	100.0%	
	204	204	100.0%	
	396	393	99.2%	
7/19	639	632	99.4%	
7/12	750	748	99.7%	
	1204	1192	99.0%	
Total	11836	11673	98.6%	

TI-NHTSA 018946

Date	Tested	Good	%	Failure Modes
August-92				
8/9	1976	1934	97.9%	
8/9	948	944	99.6%	
8/9	520	519	99.8%	
8/9	820	818	99.5%	
8/9	388	388	100.0%	
8/10	1976	1972	99.8%	
8/12	1327	1300	98.0%	
8/18	508	506	99.4%	
8/18	680	666	98.1%	
8/18	208	208	100.0%	
8/18	152	152	100.0%	
8/19	304	300	98.7%	
8/19	60	59	98.3%	
8/19	967	954	98.7%	
8/19	810	788	96.4%	
8/19	52	51	98.1%	
8/24	976	873	89.4%	
8/24	56	56	100.0%	
8/24	982	961	97.9%	
8/24	52	52	100.0%	
8/24	285	281	98.6%	
8/28	950	944	99.3%	
8/28	1782	1788	99.8%	
8/31	2055	2063	99.9%	
Total	18838	18283	96.8%	

Date	Tested	Good	%	Failure Modes
Oct-82				
10/1	1408	1403	99.6%	
10/18	232	231	99.6%	
	238	238	100.0%	
	288	288	100.0%	
	1252	1250	99.8%	
10/2	288	285	98.9%	
	178	178	100.0%	
Total	3838	3837	99.7%	

TI-NHTSA 018949

Date	Tested	Good	%	Failure Modes
Nov-82				

No reports

Total	0	0		
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TI-NHTSA 018950

Date	Tested	Good	%	Failure Modes	
Dec-82					
12/19	19	19	100.0%		
	220	211	95.9%		
	1655	1491	89.5%	cont 6	echi 158
	50	46	92.0%		
12/15	1044	1042	99.8%		
	708	707	99.9%		
	1084	1082	99.8%		
	1028	1027	99.9%		
12/19	409	371	90.7%	cont 1	achi 37
	50	50	100.0%		
	1378	1258	91.3%	cont 7	echi 113
12/15	540	540	100.0%		
	424	423	99.8%		
	624	622	99.8%		
	50	50	100.0%		
	932	930	99.8%		
	478	478	100.0%		
	228	228	100.0%		
	72	72	100.0%		
	50	50	100.0%		
	252	251	99.6%		
	632	632	100.0%		
	640	640	100.0%		
12/15	1500	1499	99.9%		
	200	200	100.0%		
	436	436	100.0%		
	179	179	100.0%		
12/3	50	44	88.0%	rior 6	
	719	645	89.7%	cont 2	rior 72
Total	18839	18481	97.1%		

TI-NHTSA 018951

Proia, Stephen

From: Balhazar, Claire
Sent: Thursday, May 20, 1999 2:16 PM
To: Proia, Stephen
Subject: L2-1 Yields

Steve,

Here are the numbers for 1992. I saw no evidence of any major leak problems. If you look at the lot reports, you will see some failures in the leak category. If this number is divisible by 4 (if 1 leaks the tester aborts the test and calls them all bad) it usually means that a set of nests went through empty or there was a bad seal between the device and the machine. The devices would then be rerun separately one by one with other devices to identify the leaker if there was one. Kind of a process of elimination. The leak quantity on the lot report should be manually adjusted by the operator.

That is what should be happening but I can't guarantee it and it is probably not written anywhere on the specs.



77P6L2-1
Yields_1992.xls

Summary sheet is at the beginning.

Claire

* YIELD DATA IS ENTERED ON L21 BLANKS.
OF LOT REPORTS FROM '91-'92 PERIOD
COPIES HAVE NOT BEEN MADE FROM
THESE BLANKS UNTIL REQUESTED TO
DO SO.



Ford - Electronic Speed Control Deactivation Pressure Switch
TI P/N 77PSL Series



Function Test Pareto Categories

<u>Test</u> <u>Acronym</u>	<u>Definition</u>	<u>Cause</u>	<u>Disposition</u>
		Device tests out of spec on the high side. Disc / Component selection.	Scrap
ACHH	Actuation High	Device tests out of spec on the low side. Disc / Component selection.	Scrap
ACLO	Actuation Low	Device fails creep test (< 200 ms). Creep is calculated from the time a switch changes electrical continuity to the time in which the system microphone detects an audible snap.	Scrap
ACCR	Actuation Creep	Device tests out of spec on the high side. Disc / Component selection.	Scrap
RLHH	Release High	Device tests out of spec on the low side. Disc / Component selection.	Scrap
RLLO	Release Low	Device fails creep test (< 200 ms). Creep is calculated from the time a switch changes electrical continuity to the time in which the system microphone detects an audible snap.	Scrap
RLCR	Release Creep	System fails to detect continuity between terminals. Typically caused by bad tester pogo pins.	Scrap
CONT	Continuity	Device tests out of spec on the low side. Disc / Component selection.	Scrap
DPHH	Differential High	Device tests out of spec on the low side. Disc / Component selection.	Scrap
DFLO	Differential Low	All tests must be full on the tester in order to complete a test sequence. If (1) device leaks the tester aborts the test and calls all (4) devices bad.	Retest to determine defective device, Scrap & Adjust lot report
LEAK	Leak		

TI-NHTSA 018963

77PSL 2-1 Yields for 1992

Date	Tested	Good	%
January-92	14341	14209	99.1%
February-92	10559	10457	99.0%
March-92	28771	27980	97.3%
April-92	18827	18475	97.8%
May-92	12018	11138	92.7%
June-92	23443	23133	98.7%
July-92	11838	11673	98.6%
August-92	18535	18253	98.5%
September-92	11853	11582	98.0%
October-92	3838	3827	99.7%
November-92	0	0	0.0%
December-92	15838	15481	97.1%
Total	182478	180510	97.7%

Date	Tested	Good	%	Failure Modes		
January-92						
1/8	808	799	98.9%			
1/13	1208	1208	99.8%			
1/14	50	50	100.0%			
1/18	1748	1741	99.6%			
1/18	788	734	93.4%	cont 10	accr 20	ncr 22
1/25	52	52	100.0%			
1/19	31	31	100.0%			
1/14	44	44	100.0%			
1/18	48	48	100.0%			
1/14	48	48	100.0%			
1/8	52	51	98.1%			
1/8	52	48	92.3%			
1/14	52	51	98.1%			
1/14	52	52	100.0%			
1/25	80	80	100.0%			
1/14	84	84	100.0%			
1/14	212	209	98.6%			
1/25	238	234	98.2%			
1/14	284	284	100.0%			
1/8	304	299	98.4%			
1/13	376	376	99.7%			
1/14	398	398	100.0%			
1/13	501	498	99.6%			
1/25	718	711	99.3%			
1/25	884	884	100.0%			
1/25	958	956	99.7%			
1/14	1088	1082	99.7%			
1/8	1308	1278	97.7%			
1/18	1916	1914	99.9%			
Total	14341	14208	98.1%			

TI-NHTSA 018955

Date	Tested	Good	%	Failure Modes				
February-82								
2/1	52	52	100.0%					
2/1	671	668	99.6%					
2/1	248	248	100.0%					
2/1	468	468	99.8%					
2/1	444	442	99.6%					
2/1	318	318	100.0%					
2/1	184	183	99.5%					
2/1	48	48	100.0%					
2/1	1384	1382	99.9%					
2/4	1248	1199	96.1%	cont 6	accr 3	actu 38	rim 1	ndr 3
2/4	168	161	95.8%					
2/4	908	908	99.8%					
2/4	518	518	99.8%					
2/23	1429	1429	100.0%					
2/17	219	219	100.0%					
2/25	830	825	99.4%					
2/25	188	188	99.9%					
2/28	1088	1088	99.0%					
2/28	212	208	97.2%					
Total	10888	10887	99.0%					

TI-NHTSA 018956

Date	Tested	Good	%	Failure Modes			
March-82							
3/1	48	48	95.5%				
3/2	420	413	98.3%				
3/3	328	326	99.1%				
3/8	918	905	98.6%				
3/10	384	324	84.4%	achi 58	rls 1		
3/10	872	748	85.8%	achi 148	dfh 3		
3/11	292	281					
3/11	892	891					
3/11	258	255					
3/11	198	195					
3/11	428	425					
3/18	718	715	99.9%				
3/18	288	282	98.0%				
3/22	48	48					
3/22	148	147					
3/22	200	199					
3/22	818	813					
3/22	1400	1383					
3/23	578	573	99.0%				
3/23	140	138	98.3%				
3/23	1584	1555	98.5%				
3/23	220	218	99.1%				
3/23	788	745	95.2%				
3/23	292	288	97.9%				
3/24	304	303	99.7%				
3/24	832	823	98.3%				
3/28	1220	1213					
3/28	80	80	100.0%				
3/28	382	380	99.5%				
3/29	1378	1364	99.1%				
3/29	584	588	99.1%				
3/11	1811	1879	98.3%				
3/8	408	407	99.5%				
3/18	1380	1368	99.0%				
3/18	412	410	99.5%				
3/18	280	277	98.9%				
3/18	1724	1720	99.8%				
3/18	380	380	100.0%				
3/19	1032	1028	99.6%				
3/19	244	208	84.0%	achi 37	rls 1	rls 1	
3/19	338	333	98.1%				
3/31	488	488	99.8%				
3/31	1878	1882	99.8%				
3/31	331	278	83.4%	achi 56			
3/31	1381	1128	81.0%	achi 220	cont 1	rls 1	
3/31	80	25	41.7%	cont 4	achi 7	rls 1	rls 7
3/31	278	223	80.5%	cont 8	achi 45		dfh 11
Total	28771	27888	97.3%				

Date	Tested	Good	%	Failure Modes		
April-82						
4/29	116	116	100.0%			
4/1	1440	1433	99.5%			
4/1	488	488	100.0%			
4/20	418	388	87.8%			
4/20	388	333	90.5%	achi 35		
4/12	1278	1267	99.3%			
4/13	788	784	99.5%			
4/13	124	124	100.0%			
4/13	352	348	98.3%			
4/14	1000	884	88.4%	achi 114	accr 1	rcr 1
4/21	398	393	98.2%			
4/21	212	211	99.5%			
4/21	548	547	99.8%			
4/21	28	28	92.9%			
4/21	1298	1287	99.3%			
4/21	380	368	96.8%			
4/21	212	207	97.6%			
4/21	400	400	100.0%			
4/21	548	543	99.1%			
4/27	488	483	99.4%			
4/27	212	212	100.0%			
4/27	1432	1387	87.6%			
4/27	212	211	99.5%			
4/27	388	382	98.5%			
4/27	884	854	96.5%			
4/27	380	358	94.4%			
4/28	298	293	98.0%			
4/28	782	778	97.9%			
4/28	384	378	97.9%			
Total	14827	14478	97.6%			

TI-NHTSA 018958

Date	Tested	Good	%	Failure Modes				
May-92								
5/5	418	381	90.9%	cont 3	accr 1	achi 1	ricr 29	
5/5	1428	1280	89.4%	cont 3	accr 1	achi 1	achi 14	ricr 147
5/11	1128	1016	90.1%	accr 8	achi 2	ricr 106		
5/11	200	183	91.5%	achi 1	ricr 18			
5/11	247	211	85.4%	achi 4	ricr 21			
5/11	81	51	63.0%	achi 1	ricr 7			
5/11	185	180	97.3%	achi 3	ricr 21	cont 2		
5/11	50	48	96.0%					
5/12	496	418	84.3%	achi 53	ricr 17			
5/12	138	128	92.0%					
5/14	554	552	99.6%					
5/14	348	320	92.0%					
5/25	1299	1239	95.4%					
5/25	336	271	80.7%	achi 17	ricr 48			
5/25	1838	1618	88.1%	cont 1	accr 1	achi 18	ricr 198	
5/28	132	132	100.0%					
5/28	152	152	100.0%					
5/28	1119	1117	99.8%					
5/28	702	700	99.7%					
5/28	904	901	99.7%					
5/28	104	102	98.1%					
5/28	80	80	100.0%					
5/28	124	123	99.2%					
Total	12018	11138	92.7%					

Date	Tested	Good	%	Failure Modes
June-92				
6/1	389	380	97.8%	
6/1	406	404	99.5%	
6/1	271	255	94.1%	
6/1	1394	1391	99.8%	
6/2	1026	1024	99.8%	
6/2	980	959	98.8%	
6/2	1563	1563	100.0%	
6/2	196	195	99.5%	
6/2	200	197	98.5%	
6/8	948	944	99.6%	
6/11	376	375	99.7%	
6/11	381	380	99.7%	
6/11	196	195	99.5%	
6/11	976	763	78.2%	
6/11	1276	1273	99.8%	
6/11	408	407	99.8%	
6/11	976	974	99.8%	
6/11	580	576	99.7%	
6/12	170	170	100.0%	
6/12	1044	1043	99.9%	
6/12	183	183	100.0%	
6/12	134	134	100.0%	
6/12	783	781	99.7%	
6/12	163	162	99.5%	
6/12	1262	1258	100.3%	
6/12	240	238	99.2%	
6/12	336	336	100.0%	
6/12	313	313	100.0%	
6/12	317	317	100.0%	
6/12	240	238	99.2%	
6/12	192	188	97.9%	
6/14	1436	1433	99.8%	
6/23	174	174	100.0%	
6/23	892	886	99.4%	
6/23	901	487	54.0%	
6/29	1186	1186	99.2%	
6/29	1128	1116	98.9%	
6/29	144	142	98.6%	
6/29	289	287	99.3%	
Total	23443	23135	98.7%	

TI-NHTSA 018960

Date	Tested	Good	%	Failure Modes
July-82				
7/28	840	831	98.8%	
	198	194	98.0%	
	1132	1118	98.8%	
7/8	815	779	95.6%	
7/15	387	356	89.4%	
7/14	688	685	98.4%	
	424	421	99.3%	
	682	685	99.0%	
	388	382	98.7%	
7/28	1360	1338	98.4%	
7/28	582	585	98.8%	
7/20	799	791	99.0%	
7/30	387	383	98.9%	
7/21	178	178	100.0%	
	204	204	100.0%	
	398	383	96.2%	
7/18	836	832	99.4%	
7/12	750	748	99.7%	
	1204	1182	98.0%	
Total	11838	11673	98.6%	

TI-NHTSA 018961

Date	Tested	Good	%	Failure Modes
August-82				
8/8	1078	1034	97.9%	
8/9	948	944	99.6%	
8/9	820	519	99.8%	
8/9	820	818	99.5%	
8/9	388	388	100.0%	
8/10	1978	1972	99.8%	
8/12	1327	1300	98.0%	
8/18	508	505	99.4%	
8/18	580	568	98.1%	
8/18	208	208	100.0%	
8/18	152	152	100.0%	
8/19	304	300	98.7%	
8/19	80	59	98.3%	
8/19	967	954	98.7%	
8/19	610	588	98.4%	
8/19	82	51	98.1%	
8/24	978	873	89.4%	
8/24	58	58	100.0%	
8/24	982	961	97.8%	
8/24	82	52	100.0%	
8/24	285	281	98.6%	
8/25	980	944	98.3%	
8/25	1792	1788	99.8%	
8/31	2086	2053	99.9%	
Total	18238	18283	98.8%	

TL-NHTSA 018962

Date	Tested	Good	%	Failure Modes			
Sep-82							
9/2	1144	1143	99.9%				
9/2	220	219	99.5%				
9/2	578	569	98.5%				
9/3	838	835	99.6%				
9/3	1091	1078	98.5%				
9/7	2089	2081	99.6%				
9/8	1829	1816	99.2%				
9/8	1092	1023	93.7%	achi 66	cont 1	scr 1	act 1
9/8	48	47					
9/8	216	209		achi 13			
9/15	980	980	100.0%				
9/15	208	208	100.0%				
9/15	820	819	99.9%				
9/15	84	84	100.0%				
9/15	308	308	100.0%				
9/15	192	192	100.0%				
Total	11883	11882	99.9%				

TI-NHTSA 018963

Date	Tested	Good	%	Failure Modes
Oct-82				
10/1	1408	1403	99.6%	
10/19	232	231	99.6%	
	238	238	100.0%	
	266	266	100.0%	
	1282	1250	97.5%	
10/2	266	266	99.9%	
	178	178	100.0%	
Total	3836	3827	99.7%	

T-NHTSA 018964

Date	Tested	Good	%	Failure Modes
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Nov-82				
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No reports

Total	0	0		
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Date	Tested	Good	%	Failure Modes	
Dec-82					
12/19	19	19	100.0%		
	220	211	95.9%		
	1885	1481	88.6%	cont 6	schl 188
	50	46	92.0%		
12/15	1044	1042	99.8%		
	708	707	99.8%		
	1084	1082	99.8%		
	1025	1027	99.8%		
12/19	408	371	90.7%	cont 1	schl 37
	50	50	100.0%		
	1378	1258	91.3%	cont 7	schl 113
12/15	540	540	100.0%		
	424	423	99.8%		
	524	522	99.6%		
	50	50	100.0%		
	932	930	99.8%		
	478	476	100.0%		
	228	228	100.0%		
	72	72	100.0%		
	50	50	100.0%		
	252	251	99.6%		
	532	532	100.0%		
	540	540	100.0%		
12/15	1500	1498	99.9%		
	280	280	100.0%		
	438	438	100.0%		
	178	178	100.0%		
12/3	50	44	88.0%	rior 6	
	718	645	89.7%	cont 2	rior 72
Total	19938	18481	92.7%		

TI-NHTSA 018966

Epstein, Sally

From: Warner, Pam [pwarner@gmail.mc.li.com]
Sent: Thursday, May 20, 1999 3:29 PM
To: DeMatteo, Mike; Tolbert, Kenneth; Racine, James; Watt, Jim; Pechonis, John; Tourangeau, Ray; Bartosh, Bob; Proia, Stephen
Subject: Ford Pressure Switch Audit

Written on behalf of Andy McGuirk.

Team,

We will be hosting, probably three individuals, from the Ford organization as early as Monday of next week to participate in some form of industrial tourism of our facility.

I am currently visiting Ford in order to work out the specific details, as well as, understand the objective.

I will see if it's possible to arrange this audit on or about June 17, but until that's resolved, I would ask that we put together an audit team to get into the 77FS operation and walk through with a fine-toothed comb and collect appropriate observations and start to drive us toward counter measures and corrective actions.

Again, time will be of the essence! I appreciate your urgent support in this matter. Thanks.

Regards,

Andy

Epstein, Sally

From: Sullivan, Martha (m-sullivan@email.mc.tl.com)
Sent: Thursday, May 20, 1999 4:10 PM
To: McGuirk, Andy
Cc: Rowland, Thomas; Beringhouse, Steven; Pechonis, John
Subject: FW: draft of ford letter



Tim

Donovan_FORD52099.doc I made a few changes. Suggest we don't invite a debate over whether continued diagnostic efforts have value but merely ask for an agreement to conclude. At a minimum you should deliver this verbally.

-----Original Message-----

From: McGuirk, Andy
Sent: Thursday, May 20, 1999 2:07 PM
To: Beringhouse, Steven; Pechonis, John; Rowland, Thomas
Cc: Sharpe, Robert; Sullivan, Martha; Warner, Pam
Subject: draft of ford letter

<<Tim Donovan_FORD52099_.doc>>

above is a rough draft..... pls review and comment c/o rob sharpe's e-mail and i will incorporate into my meeting with ford tomorrow.

3

ATTORNEY CLIENT PRIORITY INFORMATION

May 21, 1999

**Mr. Tim F. Donovan, Manager
E/E Systems-Ongoing Prod. Dev.
E/E Systems Engineering
Building 5, Mail Drop 5017
20000 Rotunda Drive, Rm 1A043
Dearborn MI 48121-2053**

Dear Tim,

I want to review our recent support of the Ford core team to assure we do not have any misunderstandings regarding our pressure switch performance and our contribution to the team.

For six months the Texas Instruments Automotive Sensors & Controls Team has been supporting the Ford Core Diagnostic Team with technical facts, data, and analysis regarding our brake pressure switch product applied in the Ford cruise control deactivation circuit.

A senior TI pressure switch engineer was in residence at Ford for three weeks to assist with switch related issues in the system diagnostic process. Senior TI leadership participation has also been involved in virtually every Ford Core Team meeting delivering facts, data, and technical support year-to-date '99.

Below is a very brief recap of activities leading us to several conclusions:

Dealer and salvage yard switch samples have produced several pressure switches with brake fluid leakage supporting a theory that switches were leaking in the field applications. There has been significant focus upon the Kapton seal system without concluding the cause of these brake fluid leakers. Certain switches evidenced wear-out due to exposure to many pressure cycles (we have theorized a vehicle application cycle quantity issue may be a factor).

Conclusion to date: Some switches exhibit end-of-life wear out and leak brake fluid thru the Kapton® diaphragm and appear to be "beyond life".

TI-NHTSA 018969

We also investigated switch capability, and using agreed upon accelerated simulation life testing techniques, demonstrated the ability of the model year '92, '93, '94 Town Car brake switches to consistently exceed "cycle life specification" of 500,000 pressure cycles. TI Weibull reports of pressure switches tested in 1999 conservatively demonstrate 95% reliability to 1 million cycles (with confidence intervals greater than 50%) while success testing records of some 665 ES units shows zero leakage at 500,000 cycles during the 1991 - 1992 period (11/91 - 12/92).

Conclusion to date: 1992 period switches met specification. 1999 switch meets or exceeds specification

We have developed and delivered a model of accelerated plastic based ignition *confusing wording* resulting from fluid in the switch cavity coupled with the constant power application of the speed control circuit. This model was used to help define the containment and countermeasure programs in the Ford overall program. Theories from the model suggest that fluids in the switch cavity could corrode and might create a plastic base ignition path.

Conclusion: constant speed control power allows long term corrosion

We have been open, and forthright in our communications and delivery of information and we believe we have been instrumental in *helping* Ford address the underhood fire concern issue. We would like to continue our open, direct technical dialogue.

In this regard, we think it is appropriate at this point that our active participation in the diagnostic journey of the vintage 1992 product move towards a timely conclusion. The 1992 test records we *recently forwarded* clearly demonstrate the product met specification. *We are committed to fulfilling your request for (site visit? Any other items we know we are going to do.) but would like to come to a mutual agreement on a near term milestone or time frame for concluding our effort.*

Our prime focus at this time is in rapidly supplying Ford with 225,000 units in support of the field actions.

Regards,

TI-NHTSA 018970

Andrew C. McGuirk
QRA Manager
Texas Instruments

ACM/paw

C: Thomas E. Masters - Ford
Frederick J. Porter - Ford
Thomas Rowland - Texas Instruments
Steve Beringhouse - Texas Instruments

TI-NHTSA 018971

Epstein, Sally

From: Gildes, Robert [rgildes@aol.mcc.com]
Sent: Thursday, May 20, 1998 4:36 PM
To: Preis, Stephen; Pechons, John; Martin, Scott; Deque, Bryce; Mulligan, Sean; Gasliere, Robert; West, Jim
Subject: Gaps in sensor building process

Team,

After reviewing the sensor building process for gaps that could cause leaks the following is a list of what I came up with. I also reviewed this with Bob Gasliere who went through the program in depth to insure that the machine was programmed the way we assumed it was. I also had the AMI operator duplicate the failures to insure the program was working properly.

1) Gasket check station. This station is not fail safe. It is designed to check for a gasket and its position using four reflective sensors. There are several problems with this design. First, the operator can not tell if the sensors are working while the machine is running. They can only determine this while doing SPC checks which are performed roughly every four hours. Therefore there is the potential to produce approximately 4k to 5k sensors without all the sensors working. Secondly, there is no detection to see if the station actually cracked down and checked the nest for a gasket. If the station gets jammed up it will call every nest good.

2) Kapton Check Stations. These stations also are not fail safe. These stations are designed to work using a continuity probe to insure the proper number of kaptons are in the nest, and that they are in the proper orientation. The first check station checks that there is two pieces of kapton. Four pogo pins come down and check for the centers of the kapton and as long as the pins do not go to ground they call the nest good. Once again the problem is that the station could be stuck up and there is no way for the machine to know it. Also, the pogo pins could be bent, broken, or missing and the system wouldn't know it. The only back check that we have is that all the pogo pins are wired in series and if one of the wires is broken it will break the series and send a fault signal to the panel. The check for the third station works in the exact same way, but it also has one feature that makes it even less reliable. Because we make devices with two kaptons we fixture the check station for the third kapton so the station can be stored up out of the way while we are running the two kapton devices. If the operator does not put the station down and perform the SPC they could conceivably run for hours without the third check station engaged. Also, as with the gasket station, we do not check to see if the check stations actually cracked down and check the nest.

3) The crimp table. We call out exact pressures with tolerances on our process specifications for the 45 degree crimp, 90 degree crimp, and overpressure, but the gauges we are using are not calibrated. Also, we do not have a PM procedure in place for the crimp dies, we leave it up to the operators and the tool room. What we depend on are our SPC checks, which are very capable. We use a poka-yoke to check the diameter of the wire and a dial indicator to check the height. The Cpk for the sensor height is 2.6.

Regards,

Bob Gildes
Phone: (508) 236-2023
Fax: (508) 236-2586
email: rgildes@aol.com

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TI-NHTSA 018972

Baker, Gary

From: Douglas, Charles
Sent: Monday, May 24, 1999 12:25 PM
To: Baker, Gary
Subject: Communication to Ford

Gary,

Please review the attached maps and then lets talk.



Material Variance RE: Material Variance RE: Material Variance
Information for Ph... Information to... Information to...

As Bob Dodd is now also leaving me voice mail relative to the above, I think we are going to need a higher level resolution.

Thanks and regards,

P.S. I have a 1:30 - 2:00/2:30 meeting with mechanization but other than that I should be around my office most of the afternoon.

Charlie

Charlie Douglas
(508) 238-3857 (P)
(508) 238-1588 (F)
c-douglas2@td.com

English, Sally

From: Douglas, Charles [c-douglas2@earthlink.net]
Sent: Monday, May 24, 1999 8:40 AM
To: Hall, Alison
Cc: Scudder, Walter
Subject: Material Variance Information for Phil Kowach

Alison,

Description of changes is as follows:

Movable Contact:

Current system: CDA210
Proposed system: CDA102 / Ag Inlay

- * Changing base copper. Increases electrical and thermal conductivity.
- * Thickness of Ag inlay is .002" minimum. Also, inlay is achieved via a cladding (metallic bond) process rather than via a plating process. Objective is to reduce fretting corrosion.
- * Modifying geometry to make contact full round. Objective is to eliminate intermittent opens in the start circuit (residual torque).

Stationary Contact:

Current system: CDA210 / Sn-Pb
Proposed system: CDA197 / Ni / Sn-Pb

- * Changing base copper.
- * Adding 50 microinch minimum Ni plated underlay. Objective of both changes is to reduce increases in contact resistance, prohibit Cu-Sn intermetallic, reduce fretting.

Leaf Spring:

Current system: 302SS / Ni / Au
Proposed system: 302SS / Ni / Ag

- * Changing from 5 microinches Au minimum to 100 microinches Ag minimum. Silver plating maintains noble material contact system longer, improved contact resistance behavior over life.
- * Deeper bifurcations of leaf spring for contact point independence (i.e. improved system robustness).

With the above as reference / background, variance per change is as follows:

	FWD Adder	RWD Adder
Movable Contact	\$0.14	\$0.14
Stationary Contact	\$0.115	\$0.12
Leaf Spring	\$0.055	\$0.06
Total	\$0.31	\$0.32

The reason for the minor differences between FWD and RWD for the stationary contact and leaf spring is simply that we have different suppliers for these components.

I think the above analysis should meet Phil's needs.

Please let me know if you have any questions.

Regards,

Charlie

Charlie Douglas
(508) 236-3637 (P)
(508) 236-1598 (F)
c-douglas2@ti.com

Explain, Sally

From: — Hall, Alison [a-hall1@attmail.usa.com]
Sent: Monday, May 24, 1999 9:09 AM
To: Douglas, Charles
Cc: Souder, Walter
Subject: RE: Material Variance Information for Phil Kovach

Will you call me at 248-305-5709 --- I am in the office.

Since this offer to not charge for the leaf spring upgrade in piece cost has been made very clear, we need to pull the leaf spring pricing out of this breakout so they will not think that we were gouging them (at \$.28 or \$.31) OR even lying to them about the leaf spring upgrade being free of charge. Only the tooling for the bifurcations was being passed on to Ford for the leaf spring upgrade.

Ford has been advised at least 5 times that the leaf spring impact was not included in the price adder. This communication has been provided in both written and verbal communications to Ford (purchasing and engineering).

Will you further break-out the following **:

- * Base copper change (moveable)
- * Inlay charges (moveable)
- * rounded geometry (moveable)
- * Base copper change (stat)
- * Nickel addition (stationary)

** Phil requested an itemized breakout by individual change. During our meeting he even commented on the pricing of the metals used (market pricing). He will be asking for the further breakout, so he is able to have this cost justified (or just feel good about it).

I am in the office today. I will be delivering the breakout to Phil tomorrow at 10:00am on a excel type spreadsheet (may consider letter head) and will leave him a copy. Only hard copies of our breakout will be provided (no e-mail versions).

Would like to discuss with you offering the \$.28 to \$.29 price again advising that we will absorb the increased cost of the "inlay" vs. plated movable contact. Would not want Phil to challenge Ed with why this needs to be an inlay type vs. plated from an engineering perspective, so this would remove that variable.

Regards,

Alison

-----Original Message-----

From: Douglas, Charles
Sent: Monday, May 24, 1999 9:40 AM
To: Hall, Alison
Cc: Souder, Walter
Subject: Material Variance Information for Phil Kovach

Alison,

Description of changes is as follows:

Movable Contact:

Current system: CDA210

Proposed system: CDA102 / Ag Inlay

- * Changing base copper. Increases electrical and thermal conductivity.
- * Thickness of Ag inlay is .002" minimum. Also, inlay is achieved via a cladding (metallic bond) process rather than via a plating process. Objective is to reduce fretting corrosion.
- * Modifying geometry to make contact full round. Objective is to eliminate intermittent opens in the Start circuit (residual torque).

Stationary Contact:

Current system: CDA210 / Sn-Pb
Proposed system: CDA197 / Ni / Sn-Pb

- * Changing base copper.
- * Adding 50 microinch minimum Ni plated underlay. Objective of both changes is to reduce increases in contact resistance, prohibit Cu-Sn intermetallic, reduce fretting.

Leaf Spring:

Current system: 302SS / Ni / Au
Proposed system: 302SS / Ni / Ag

- * Changing from 5 microinches Au minimum to 100 microinches Ag minimum. Silver plating maintains noble material contact system longer, improved contact resistance behavior over life.
- * Deeper bifurcations of leaf spring for contact point independence (i.e. improved system robustness).

With the above as reference / background, variance per change is as follows:

	FWD Adder	RWD Adder
Movable Contact	\$0.14	\$0.14
Stationary Contact	\$0.115	\$0.12
Leaf Spring	\$0.055	\$0.06
Total	\$0.31	\$0.32

The reason for the minor differences between FWD and RWD for the stationary contact and leaf spring is simply that we have different suppliers for these components.

I think the above analysis should meet Phil's needs.

Please let me know if you have any questions.

Regards,

Charlie

Charlie Douglas
(508) 236-3657 (F)
(508) 236-1598 (F)
c-douglas2@ti.com

Boston, Kelly

From: — Hall, Alison [a-hall1@erdc.no.llnwd]
Sent: Monday, May 24, 1999 11:02 AM
To: Douglas, Charles
Cc: Scudder, Walter; Dodd, Bob
Subject: RE: Material Variance Information for Phil Kovach

Importance: High

The goal is to present a team front in managing this Ford transmissions account. Additionally, we are continuing to build valuable customer relationships with buyers and engineers that are strengthened by our consistency of message, trustworthiness, and integrity of our corporation. I am still interested in discussing this pricing breakout with you, although we were disconnected on our conversation this morning. If you are unable to reach me at my desk, please call me on my cell phone at 248-705-4694.

Here are recommendations on how to manage this pricing breakout:

A) (Since we are concerned about relating the costs at \$.31 or \$.32 to actual charges) Have TI offer to absorb the inlay cost increase (\$.03) based on the benefits this provides over a plated moveable contact. Also, there are nearly no price implications internally for this inlay versus plating. This returns us to \$.28 piece cost adder.

B) Removal of any mention of the leaf spring costs based on maintaining the integrity of TI. See comments/notes in earlier message.

C) Split the remainder (\$.28 and \$.29) costs between:

- * Base copper change (moveable)
- * Rounded geometry (moveable)
- * Base copper change (stat)
- * Nickel addition (stationary)

Also, please be aware that material pricing, tooling amortizations, and labor/OH charges may be brought up again by Phil. He has already commented on this during our earlier conference call (in particular, raw materials, tooling amortization).

Advise of any questions.

Alison

-----Original Message-----

From: Hall, Alison
Sent: Monday, May 24, 1999 10:05 AM
To: Douglas, Charles
Cc: Scudder, Walter
Subject: RE: Material Variance Information for Phil Kovach

Will you call me at 248-305-5709 --- I am in the office.

Since this offer to not charge for the leaf spring upgrade in piece cost has been made very clear, we need to pull the leaf spring pricing out of this breakout so they will not think that we were gouging them (at \$.28 or \$.31) OR even lying to them about the leaf spring upgrade being free of charge. Only the tooling for the bifurcations was being passed on to Ford for the leaf spring upgrade.

Ford has been advised at least 3 times that the leaf spring impact was not included in the price adder. This communication has been provided in both written and verbal communications to Ford (purchasing and engineering).

Will you further break-out the following **:

- * Base copper change (moveable)
- * Inlay charges (moveable)
- * rounded geometry (moveable)
- * Base copper change (stat)
- * Nickel addition (stationary)

** Phil requested an itemized breakout by individual change. During our meeting he even commented on the pricing of the metals used (market pricing). He will be asking for the further breakout, so he is able to have this cost justified (or just feel good about it).

I am in the office today. I will be delivering the breakout to Phil tomorrow at 10:00am on a excel type spreadsheet (may consider letter head) and will leave him a copy. Only hard copies of our breakout will be provided (no e-mail versions).

Would like to discuss with you offering the \$0.28 to \$.29 price again advising that we will absorb the increased cost of the "inlay" vs. plated movable contact. Would not want Phil to challenge Ed with why this needs to be an inlay type vs. plated from an engineering perspective, so this would remove that variable.

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Alison

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Sent: Monday, May 24, 1999 9:40 AM

To: Hall, Alison

Cc: Souder, Walter

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Please let me know if you have any questions.

Regards,

Charlie

Charlie Douglas
(508) 236-3657 (F)
(508) 236-1898 (F)
c-douglas2@ti.com

Currey, Pat

From: - Beringhouse, Steven [sberinghouse@email.mc.ti.com]
Sent: Wednesday, May 26, 1999 9:41 AM
To: McGuirk, Andy
Subject: RE: ford draft...attorney client privileged communication

Andy,

I think it looks good. Do we want to be more specific about eliminating power in FUTURE model years?

Steve

From: McGuirk, Andy
Sent: Wednesday, May 26, 1999 10:01 AM
To: Beringhouse, Steven; Baumann, Russ; Pechonis, John; Rowland, Thomas; Baker, Gary
Cc: Warner, Pam
Subject: ford draft...attorney client privileged communication

<<File: FredPort final2.doc>>

pls review and edit

a

AUTOMOTIVE SENSORS AND CONTROLS QRA MANAGER
34 FOREST ST M/S 23-05
ATTLEBORO, MA 02703
TEL : (508) 236-3080
FAX : (508) 236-3745
MOBILE: (508) 208-6119
PAGE: (800) 467-3700 PIN 604-2044

Currey, Pat

From: McGuirk, Andy [a-mcguirk@email.mc.ti.com]
Sent: Wednesday, May 26, 1999 3:23 PM
To: Sharpe, Robert
Subject: FW: ford draft...attorney client privileged communication



FredPort final2.doc

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pls review and edit

2

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PAGE: (800) 467-3700 PIN 604-2044

May 26, 1990

Mr. Frederick J. Porter, Supervisor
E/E Systems Engineering
Building 5, Mail Drop 5011
20000 Rotunda Drive, Rm 3E004
Dearborn MI 48121-2053

Dear Fred:

I want to review our recent support of the Ford core team to assure we do not have any misunderstandings regarding our pressure switch performance, our continued contribution to the 'core' team, and our commitment to a quick conclusion.

For six months the Texas Instruments Automotive Sensors & Controls Team has been supporting the Ford Core Diagnostic Team with technical facts, data, and analysis regarding our brake pressure switch product applied in the Ford cruise control deactivation circuit.

A senior TI pressure switch engineer was in residence at Ford for three weeks to assist with switch related issues in the system diagnostic process. Senior TI leadership participation has also been involved in virtually every Ford Core Team meeting delivering facts, data, and technical support year-to-date '89.

We also investigated switch capability, and using agreed upon accelerated simulation life testing techniques, demonstrated the ability of the model year '82 & '83, Town Car speed control deactivation switches to consistently exceed "cycle life specification" of 500,000 pressure cycles. TI Weibull reports of pressure switches tested in '1989 conservatively demonstrate 95% reliability to 1 million cycles (with confidence intervals greater than 50%).

Additionally "success testing records" of some 665 ES units that were tested during the 1991 - 1992 (11/91 - 12/92) showed zero leakage at 500,000 cycles.

Conclusion to date: 1992 period switches met specification. 1990 switch meets or exceeds specification

We have developed and delivered a laboratory model of accelerated plastic base ignition of the switch resulting from fluid in the switch cavity coupled with application of constant power as designed in the speed control circuit. Theories from the model suggest that fluids in the switch cavity in the presence of uninterrupted power could lead to a corrosion product formation which might create a plastic base ignition path.

TI-NHTSA 018984

Mr. Fred Porter
May 25, 1988
Page 2

Conclusion to date: Constant speed control power allows long term corrosion

In light of this laboratory model and the need for cruise system power only during vehicle operation, we suggest the system architecture of "key-on/off" based power be considered.

We have been open and forthright in our communications and delivery of information and we believe we have been instrumental in helping Ford address the underhood fire concern issue.

In this regard, we think it is appropriate at this point that our active participation in the diagnostic journey of the vintage 1982 product move towards a timely conclusion.

We are preparing to fulfill your request for hosting a site visit, supporting campaign field return device analysis, and participating in robust system brainstorming sessions moving toward conclusion in July, as well as reviewing the optimization of our product line process controls.

Our prime focus at this time is in rapidly supplying Ford with 225,000 units in support of the field actions.

Regards,

Andrew C. McGuirk
QRA Manager
Texas Instruments

attachments: 1982 Testing History
TI 77PS Test synopsis
TI 77PS Investigation Flow Diagram

TI-NHTSA 018985

Currey, Pat

From: Pawlowski, Robin [rpawlowski@email.mc.ti.com]
Sent: Wednesday, May 26, 1999 3:59 PM
To: McGuirk, Andy
Subject: Ford

Andy, I went through all the prints we had over here on file . F2VC 9F924BB is the 57PSL5-3. I have yet seen any shipments on this device for '91, but you are right looking at this print we started shipping in '90 --- do you want me to go back into the '90 records--- it looks as though it may have only shipped(if at all in Dec of that year).

Is it possible that we only shipped this part in the beginning of '91. I went from Dec back due to the fact that was were most of the records were.

robin

Cutrey, Pat

From: McGuirk, Andy [a-mcguirk@email.mc.ti.com]
Sent: Thursday, May 27, 1999 7:42 AM
To: Dague, Bryan; Beringhouse, Steven; Baumann, Russ; Pechonis, John
Subject: FW: Ford

we continue to be confounded by the p/n records.....

a

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MOBILE: (508) 208-6119
PAGE: (800) 467-3700 PIN 604-2044

From: Pawlowski, Robin
Sent: Wednesday, May 26, 1999 4:59 PM
To: McGuirk, Andy
Subject: Ford

Andy, I went through all the prints we had over here on file . F2VC 9F924B5 is the 57P6L5-3. I have yet seen any shipments on this device for '91, but you are right looking at this print we started shipping in '90 --- do you want me to go back into the '90 records--- it looks as though it may have only shipped(if at all in Dec of that year).

Is it possible that we only shipped this part in the beginning of '91. I went from Dec back due to the fact that was were most of the records were.

robin

Currey, Pat

From: McGuirk, Andy [a-mcguirk@email.mc.ti.com]
Sent: Thursday, May 27, 1999 4:16 PM
To: Beringhouse, Steven; Dague, Bryan; Proia, Stephen
Subject: FW: ANDY.xls



ANDY.xls

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From: Pawlowski, Robin
Sent: Thursday, May 27, 1999 4:45 PM
To: McGuirk, Andy
Subject: ANDY.xls

ANDY LOOK AT THE YEAR TAB -- I HIGHLIGHTED IN YELLOW WHAT I HAVE
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77PSL2-1 AND THE 57PSL5-3 ARE THE SAME TI PRINT -- WE JUST CHANGED THE PART
NUMBER AND FORD CHANGED THEIR SUFFIX FROM AN "AS" TO A "BB" -- THE
DEMENSION AND WHAT NOT LOOK THE SAME????

THE 77PSL2-1 PRINT I HAVE NOW (LATEST WAS SIGNED OFF IN '94 AND SO WAS THE
57PSL3-1 THOUGH FORD APPROVED THEM BOTH IN APRIL OF 91

AS YOU CAN SEE I DID NOT FIND MANY SHIPMENTS --- I STILL WANT TO GO THROUGH
THE FIRST THREE MONTHS OF THE YEAR.

ROBIN <<ANDY.xls>>

Customer	REF TO LOC	Prod. Mapping	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	FW 1981-2	Material
1981																
PITTS INDUSTRIES																
		57P6F3-5 / E78C 3884 AA	0	0	0	0	0	0	1.42	0	0	1.42	0	0.45		
		57P6F3-5 / E80Y 8288 AA	0.25	4.25	2.14	2.5	3.05	2.99	5.25	2.57	2.57	4.74	0.95	1.75		
		57P6L3-6 / F2VC 8F84 88	0	0	0	0.25	0.45	0.45	0	0	2.14	12.51	7.01	0		
		77P6L2-1 / F2VY 8F84 88	0	0	0	0	0	0	0	0	0	0.9	0	12.13		
TURN																
		57P6F3-5 / E78C 3884 AA													0.45	
		57P6L3-6 / F2VC 8F84 88							0.2							
		77P6L2-1 / F2VY 8F84 88													0.25	
KILBRY HAYES																
		57P6L3-6 / E78C 3884 AA	0	15.55	0	0	0	14.04	13.05	13.17	13.05	10.25	5.95	11.85		
		77P6L2-1 / F2VC 8F84 88											0.25			
		57P6F3-5 / E78C 3884 AA		0.15									0.25			
		57P6L3-6 / F2VC 7F84 88														
		57P6L3-6 / E78C 3884 AA							0.45							
FORD																
		77P6L2-1 / F2VC 8F84 88					0.45									
		77P6L3-6 / F2VC 8F84 88											7.14	0.45		
		57P6L3-6 / E78C 3884 AA							0.25		0.75	0.75	1.55	1.5		
		57P6L3-6 / E78C 3884 AA					0.07	0.25	0.45	0.45	0.45	0.45	11.85			
1982																
BANK CORP.																
		77P6L2-1 / F2VC 8F84 88	21.85	07.11	03.35	0	0	0	0	0	0	0	0	0		
		77P6L3-6 / F2VC 8F84 88	0	0	0	0	22.85	0	74.75	22.85	0	0	0	0		
		77P6L3-6 / F2VC 8F84 88	0	0	0	0	0	0	0	0	0	0	0	0		
WT COMP																
		77P6L3-6 / F2VC 8F84 88	4.85	0	0	0	0	0	0	0	0	0	0	0		
		77P6L3-6 / F2VC 8F84 88	0	0	0	0	0	0	0	0	0	4.85	0.85	7.04		
PITTS INDUSTRIES																
		77P6L2-1 / F2VC 8F84 88	41.95	41.21	0.47	21.25	22.25	2.25	24.25	25.75	21.45	41.25	44.74	15.55		
		77P6L3-6 / F2VC 8F84 88	0	0	0	0	0	0	0	0.75	0	0	0	0		
FORD MOTOR																
		77P6L3-6 / F2VC 8F84 88	0	0	0	0	0	0	0	0	0.47	0	0	0		
		77P6L3-6 / F2VC 8F84 88	15.51	15.7	21.45	15.5	22.25	15.7	15.5	15.55	15.55	0.85	17.75	15.55		

TI-NHTSA 018889

Currey, Pat

From: Pawlowski, Robin [rpawlowski@email.mc.ti.com]
Sent: Thursday, May 27, 1999 3:45 PM
To: McGuirk, Andy
Subject: ANDY.xls



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ROBIN <<ANDY.xls>>

TI-NHTSA 018993

TI-NHTSA 018894

CONFIDENTIAL

[illegible]

[illegible]

FORM MOTOR

Output/Current/Power
Supply (Wattage/Amperage)
Resistance/Impedance/Reactance

TYPE 1.2 / F20A SP800 AA
TYPE 1.2 / F20C SP800 AB
TYPE 1.2 / F20A SP800 CA

21 10	21 40	25 0	30 00	30 00	37 37	4 10	30 40	30 00	30 07	24 75	17 37
0	0	0	0	0 14	0	0	0	0	0	0 14	0
0	0	0	0 40	0	0	0 40	1 2	0	0 40	0 00	0 200

10 (0.00) 0.00
7 (0.00) 0.00
7 (0.00) 0.00

TORQUE

TYPE 1.2 / F20A SP800 CA
TYPE 1.2 / F20C SP800 AB

12	67 04	100 0	73 0	124 00	130 07	07 12	107 04	00	40	00 00	00 00
----	-------	-------	------	--------	--------	-------	--------	----	----	-------	-------

7 (0.00) 0.00
10 (0.00) 0.00

SPECIFIC CURRENT

TYPE 1.2 / F20A SP800 AA

0	0	0 20	0	0	0	0 00	0	0 00	0	0 00	0 00
---	---	------	---	---	---	------	---	------	---	------	------

10 (0.00) 0.00

WILET INDUSTRIES

TYPE 1.2 / F20A SP800 CA
TYPE 1.2 / F20C SP800 AB
TYPE 1.2 / F20A SP800 CA

2 00	0	0 1	0 0	0	0	0 0	0 0	0	1 00	0	0
0	0 00	0 00	0 00	0 0	0 0	0 0	10 00	0	0	0	1 00
0	0	0	0	0	0	0	0	0	0	0	0

1 (0.00) 0.00
3 (0.00) 0.00
2 (0.00) 0.00

BOUCH INDUSTRIES

TYPE 1.2 / F20C SP800 AB
TYPE 1.2 / F20A SP800 CA

10 7	00 0	10 0	00 00	10 7	01 4	0 00	4 00	4 00	0	0	0
00 4	00 0	07 12	00 00	00 4	00 00	00 00	00 0	00 4	07 1	00 00	00 4

0 (0.00) 0.00
7 (0.00) 0.00

FORM

FORM MOTOR

Output/Current/Power
Supply (Wattage/Amperage)
Resistance/Impedance/Reactance
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TYPE 1.2 / F20A SP800 AA
TYPE 1.2 / F20C SP800 AB
TYPE 1.2 / F20A SP800 CA
TYPE 1.2 / F20C SP800 AB

14 70	00 70	00 00	00 00	00 00	21 00	1 10	11 0	10 07	00 00	00 77	00 00
0	0 00	0	0	0	0	0	0 00	0	0	0	0
0 4	0 00	0 70	1 0	0 00	1 00	0 00	1 00	0 00	0 00	0 00	1 0
0	0	11 0	0 00	10 00	0	0	0 00	0 00	0	0 00	0 00

10 (0.00) 0.00
7 (0.00) 0.00
7 (0.00) 0.00
3 (0.00) 0.00

TORQUE

TYPE 1.2 / F20A SP800 CA
TYPE 1.2 / F20C SP800 AB

00 10	11 04	100 00	70 00	00 00	101 70	00 00	10 00	00 04	00 12	40 4
-------	-------	--------	-------	-------	--------	-------	-------	-------	-------	------

7 (0.00) 0.00
10 (0.00) 0.00

SPECIFIC CURRENT

TYPE 1.2 / F20A SP800 AA

0	0	0	0	0	0	0	0	0 00	0 00	0	0
---	---	---	---	---	---	---	---	------	------	---	---

10 (0.00) 0.00

WILET INDUSTRIES

TYPE 1.2 / F20A SP800 CA
TYPE 1.2 / F20C SP800 AB
TYPE 1.2 / F20A SP800 CA

0	1 00	0 14	0 00	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0 00	0

1 (0.00) 0.00
3 (0.00) 0.00
2 (0.00) 0.00

BOUCH INDUSTRIES

TYPE 1.2 / F20C SP800 AB
TYPE 1.2 / F20A SP800 CA

00 4	00 4	07 12	00 0	07	07 0	07	00 4	00 00	00 00	00 7	00 0
------	------	-------	------	----	------	----	------	-------	-------	------	------

0 (0.00) 0.00
7 (0.00) 0.00

CONFIDENTIAL

TI-NHTSA 018937

Currey, Pat

From: - McGuirk, Andy [a-mcguirk@email.mc.ti.com]
Sent: Friday, May 28, 1999 8:59 AM
To: Pechonis, John; Proia, Stephen; Amaral, Paul; Watt, Jim; Beringhouse, Steven; Dague, Bryan; Sharpe, Robert; McGuirk, Andy
Cc: Baumann, Russ; Rowland, Thomas; Haynes, John; Andres, Amy; Douglas, Charles
Subject: RE: line audit by ford

Importance: High

lets consider this strawman proposal for weds visit by ford...

i will publish final plan and attendee list this weekend

we have agreed to host a visit by steve reimers on weds june 2nd
for a 930-200 visit to the operations. rob sharpe might attend.

ford understands our issues trying to accomodate the visit with our
current conflict of launches and vacations etc.

at our tues 7 am meeting june 1st i want to plan to build the final
agenda for steve's visit

(we will also continue to plan on a larger visit 17-18 june.)

we will start weds with the extended team, intro and days
objectives....andy

quick ford issue overview and dialogue by steve r
.....andy

maybe look at brake fluid corrosion status samples...photos....the
corrosion story.....steve b

line overview and key process parameters.....steve p

let steve r tell us the story of ford concerns/causes....show the 14
d ?? (i'll try).....steve r

we should plan on the time line discussion(sp/bg/bd) and the crimp
controls (bg/sp) as well as yield data.

show photos of 'manual' vs auto crimpers and discuss
differences.....steve p

show crimper controls.....tools geometry controls
?.....steve p

TI-NHTSA 018998

design lab tour to see the testing process and the support
systems.....bryan d

discussions of what the likely parameters are of interest.....cause
and effect diagram... steve p

prepare to go into pfmea and d fmea and control
plan.....jim w & paul a and bryan d and bob g

wrap up and make plans for the 17th visit

participate in ford 2pm core team meeting

depart to airport at 230 pm

pls review and comment via phone to me

i suggest we include a line overview and have counseled several key
techs and lead operators for possible dialogue with steve during the
eventuall line tour (lets hold a session with them tuesday !)

a

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ATTLEBORO, MA 02703
TEL : (508) 236-3080
FAX : (508) 236-3745
MOBILE: (508) 208-6119
PAGE: (800) 467-3700 PIN 604-2044

Currey, Pat

From: McGuirk, Andy [a-mcguirk@email.mc.ti.com]
Sent: Friday, May 28, 1999 1:34 PM
To: Warner, Pam
Subject: FW: Test Report Synopsis and testlog.



Synopsis.doc



TESTLOG9.xls

AUTOMOTIVE SENSORS AND CONTROLS QRA MANAGER
34 FOREST ST M/S 23-05
ATTLEBORO, MA 02703
TEL.: (508) 236-3080
FAX : (508) 236-3745
MOBILE: (508) 208-6119
PAGE: (800) 467-3700 PIN 604-2044

REDACTED

REDACTED

From: Mulligan, Sean
Sent: Thursday, May 20, 1999 9:12 AM
To: McGuirk, Andy; Beringhouse, Steven
Subject: Test Report Synopsis and testlog.

Please review the latest version of the Test synopsis and Test log.

<<synopsis.doc>> <<TESTLOG9.xls>>

Revised items on the Test Synopsis are highlighted in red. There have been minor changes throughout the document so it is worth skimming the entire document (esp. in light of recent developments).

The following items have been updated on the test log:
Test 14, 15a and 17.

Awaiting your feedback,

All the best,

Sean P. Mulligan

TI-NHTSA 019000

Texas Instruments
Automotive Sensors & Controls
Mechanical Design
Phone (508) 236-2535
Fax (508) 236-3586

Currey, Pat

From: McGuirk, Andy [a-mcguirk@email.mc.ti.com]
Sent: Tuesday, June 01, 1999 11:50 AM
To: Beringhouse, Steven; Proia, Stephen
Subject: FW: Ford foil



Andy.ppt

maybe for your use ?

A
AUTOMOTIVE SENSORS AND CONTROLS QRA MANAGER
34 FOREST ST N/S 23-05
ATTLEBORO, MA 02703
TEL : (508) 236-3080
FAX : (508) 236-3745
MOBILE: (508) 208-6119
PAGE: (800) 467-3700 PIN 604-2044

From: Wellman, Stacey
Sent: Thursday, May 20, 1999 11:27 AM
To: Warner, Pam
Cc: Sharpe, Robert; McGuirk, Andy
Subject: Ford foil

At the request of Andy McGuirk, I am sending the following attachment to you:

<<Andy.ppt>>

Regards,
Stacey



NA Hydraulic Switch History

Time Period:	'83	'87	'90	'91	'98	'99
Application:	Power Steering	Power Steering Suspension	Power Steering Suspension Transmission	Power Steering Suspension Transmission Cruise	Power Steering Suspension Transmission Cruise Clutch	Power Steering Suspension Transmission Cruise Clutch
Fluid:						
						
						

- TI has some 16 years and 130 million units accumulated experience in hydraulic applications using multiple fluids
- TI has some 12 years of brake system application experience working with brake fluids

Epstein, Sally

From: Sharps, Robert [rsharps@gmail.mc.n.com]
Sent: Wednesday, June 09, 1999 2:10 AM
To: Spencer, John; McGuirk, Andy
Co: Foster, Barbara; DeMottis, Mike; Watt, Jim
Subject: Ford STA visit


John

John,

Ford STA John Rantis is scheduled to visit Attleboro next week (17th, 18th) primarily to review/understand the 7799 process and design. As such, Mr. Rantis would also like to use this visit to review our supplier rating management for the ASK2E, K9LiA, and K9LiE business units on Friday, the 18th. He has provided the attached file as a format for the 6/18 review and has asked that this chart be updated with our latest (mature) data (available in SIM). In addition, John R. will be expecting a QOS overview (Andy/Jim) as well.

<bu_ti.xls>

I am assuming that you would lead our discussions on Friday (6/18) regarding our supplier rating management. I will be in Phoenix (w/Visteen) thru Thursday, back in the office on Friday and would like to work with you regarding an agenda for the 18th.

Best Regards,

Rob Sharps
Texas Instruments
Phone (248) 305-5729
Fax (248) 305-5734
rsharps@ti.com

Epstein, Sally

From: Pechonis, John [pechonis@mail.mc.ti.com]
Sent: Wednesday, June 09, 1999 8:00 AM
To: Watt, Jim
Subject: RE: Ford STA visit- June 17-18, 1999

Jim, you will need to provide a QOS overview.

From: Watt, Jim
Sent: Wednesday, June 09, 1999 8:11 AM
To: Pawlowski, Robin; Dague, Bryan; Douglas, Charles; Gilder, Robert; Martin, Scott; Mikey, Mary-Jean; Pechonis, John; Froia, Stephen; Watt, James
Subject: FW: Ford STA visit- June 17-18, 1999

fyi for upcoming Ford 779S visit.
Jim Watt, QRA, msqid: jw02; mail station 12-33; page
(508) 236-1010, no. (0698)
ph (508) 236-1719;
fax (508) 236-3153

From: Sharpe, Robert
Sent: Wednesday, June 09, 1999 3:10 AM
To: Spencer, John; McGuirk, Andy
Cc: Foster, Barbara; DeMattia, Mike; Watt, Jim
Subject: Ford STA visit

John,

Ford STA John Rantia is scheduled to visit Actleboro next week (17th, 18th) primarily to review/understand the 779S process and design. As such, Mr. Rantia would also like to use this visit to review our supplier rating management for the ASHEE, KSLIA, and KSLIE business units on Friday, the 18th. He has provided the attached file as a format for the 6/18 review and has asked that this chart be updated with our latest (mature) data (available in SIM). In addition, John R. will be expecting a QOS overview (Andy/Jim) as well.

<<File: bq_ti.xls>>

I am assuming that you would lead our discussions on Friday (6/18) regarding our supplier rating management. I will be in Phoenix (w/Visteon) thru Thursday, back in the office on Friday and would like to work with you regarding an agenda for the 18th.

Best Regards,

Rob Sharpe
Texas Instruments
Phone (248) 305-5729
Fax (248) 305-5734
rsharp@ti.com

TI-NHTSA 019005

Epstein, Sally

From: Sharpe, Robert (rsharpe@email.mc.ti.com)
Sent: Saturday, June 12, 1999 5:08 AM
To: McGuirk, Andy; Rowland, Thomas
Cc: Pechonis, John
Subject: RE: Please Call

Sensitivity: Confidential

John Rentis has been postponed to Friday, 6/25/99. Scheduled to arrive in Attleboro 6/24/99 evening, leaving Providence on 6/25 @ 7:45pm. The purpose of one day visit is for 77PS and QOS Overview, as well as, Business Unit Review of Supplier Rating Metrics.

Best Regards,

Rob Sharpe
Texas Instruments
Phone (248) 305-5729
Fax (248) 305-5734
rsharpe@ti.com

-----Original Message-----

From: McGuirk, Andy
Sent: Friday, June 11, 1999 1:07 PM
To: Rowland, Thomas
Cc: Sharpe, Robert; Pechonis, John
Subject: RE: Please Call
Sensitivity: Confidential

reimers has been 'postponed' and rentis is being coordinated through sharpe.

we will stay on course for a 'flawless' friday meeting with rentis.

john p, would you assure we are on track for flawless first impression

a

From: Rowland, Thomas
Sent: Friday, June 11, 1999 7:49 AM
To: McGuirk, Andy
Subject: Please Call
Importance: High
Sensitivity: Confidential

Andy, please give me a call as soon as possible. I need you to call Fred Porter and postpone their visit until after we have a Legal/Business Strategy meeting with Ford regarding some litigation.

Thanks,

Tom

77PSI 2-1 Return Analysis Sheet

Device ID: _____

Date: _____

Operator's Name: _____

Sw Date Code: _____

1 Visual Inspection

General condition of Switch:
Signs of leakage into connector?

Good	Bad
No	Yes

2 Current draw:

Terminal to Terminal?
Terminal to Housing?

mA
mA

3 Open Crimp Ring

4 Visual Inspection

Connector Leak? No
Component wear? No
BP leak? No
Environment seal condition? Good
If seal bad, Why?
Corrosion? Yes
Additional actions? Pictures?

None	Light	Heavy
No	Yes	
Good	Bad	
Yes	No	

5 Leak Test Sensor Assy.

Pass	Fail
------	------

6 Open Oup Crimp.

7 Kapton Inspection

Condition of Kapton
Deterioration of Kapton
Cracks of Kapton
Leaking Kapton

good	bad	comments:		
0	1	2	3	
0	1	2	3	
0	1	2	3	

8 Gasket Inspection

Present
Nibbles/misalign material
Compression Set

Yes	No
Yes	No
Yes	No

9 Package and Store

10 Analysis Summary:

NTF	Issue Discovered
-----	------------------

TI-NHTSA 019007

11:23 AM 5/15/00

C:\dogue\excel\77-FA sheet

77PSL2-1 Return Analysis Sheet

Device ID: _____

Date: _____

Operator's Name: _____

Sw Date Code: _____

1 Visual Inspection
General condition of Switch:
Signs of leakage into connector?

Good
No
Bad
Yes

2 Leak Check

Pass
Fail

3 Current draw:
Terminal to Terminal?
Terminal to Heatsink?

mA
mA

4 Open Crimp Ring

5 Visual Inspection
Connector Leak?
Component wear?
BIF leak?
Environment seal condition?
If seal bad, Why?
Condition?
Additional actions? Pictures?

No
None
No
Good
Yes
No
No
Yes
No
No

Light
Yes
Bad

Heavy

6 Leak Test Sensor Asm.

Pass
Fail

7 Open Cup Crimp.

8 Kapton Inspection
Condition of Kapton
Detachment of Kaptons
Cracks of Kaptons
Leaking Kaptons

good
bad
0
0
0

comments:

1 2 3
1 2 3
1 2 3

9 Gasbet Inspection
Present
Nibbles/misleading material
Compression Set

Yes
Yes
Yes
No
No
No

10 Package and Store

11 Analysis Summary:

NTF
Issue Discovered

all?
2 per month that 121
1, 2, 3 plus
10 per month
of PS production
Any
Total analyzed = 240 switches

1. 1 day per / Excise / 77 - FTH sheet

TI-NHTSA 019008

Curry, Pat

From: Watt, Jim [jwatt@email.mc.ti.com]
Sent: Wednesday, June 23, 1999 4:26 PM
To: Pawlowski, Robin; DeMattia, Mike; Johnson, Alan; Tolbert, Kenneth; Spencer, John; Brishkovski, Sasha
Cc: McGuirk, Andy; Pechonia, John; Castillo, Alberto; Tourangeau, Ray; Reidemeister, Eric
Subject: Ford PPM Plant Data For Ford STA 06/25/99 visit to TI-A
Sensitivity: Confidential

We will need to be prepared to provide some information relative to the most recent Ford PPM data base, for the John Rents, Ford STA visit 06/25/99. The most recent Ford PPM data base shows the following:

1. May '99, Ford Plant 6653A- Bordeaux Auto Transm returned (2) Ford Part Number 87LP_7F293_AA Sensor Assy-Transm Man LVR Pos.305 (TRS part number 2TS3-1) out of a receival of 36,000, for 55 PPM.

Please provide failure mode, cause, corrective action update summary-

Mike DeMattia/ Alan Johnson, 06/24/99

2. May'99, Ford Plant 0264F- Castle Bromwich X200 Assy Plant returned (4) Ford Commodity S350- Sensor (Non-Emission) (CAS part number 45557-1) out of a receival of 250,000 , for 15 PPM.

Please provide failure mode, cause, corrective action update summary-

Ken Tolbert/ Sasha Brishkovski, 06/24/99

Thanks,

Jim Watt

Jim Watt, QRA, msgid: jw02; mail station 12-33; page (508)236-1010, no. (0696)
ph (508) 236-1719;
fax (508)236-3153

CONFIDENTIAL

Curray, Pat

From: Watt, Jim [jwatt@email.mc.ti.com]
Sent: Wednesday, June 23, 1999 4:56 PM
To: Watt, Jim; Johnson, Alan; Tolbert, Kenneth; DeMattia, Mike; Brishkovski, Sasha
Cc: McGuirk, Andy
Subject: RE: Ford PPM Plant Data For Ford STA 06/23/99 visit to TI-A

Sensitivity: Confidential

For the CAS and TRS returns noted below, it would be appropriate if we could present the corrective action effort in 8-D format.

thanks,

Jim Watt, QRA, msqid: jw02; mail station 12-33; page (508)236-1010, no. (0696)
ph (508) 236-1719;
fax (508)236-3153

From: Watt, Jim
Sent: Wednesday, June 23, 1999 5:27 PM
To: Pawlowski, Robin; DeMattia, Mike; Johnson, Alan; Tolbert, Kenneth; Spencer, John; Brishkovski, Sasha
Cc: McGuirk, Andy; Pechonis, John; Castillo, Alberto; Tourangeau, Ray; Reidemeister, Eric
Subject: Ford PPM Plant Data For Ford STA 06/23/99 visit to TI-A

Sensitivity: Confidential

We will need to be prepared to provide some information relative to the most recent Ford PPM data base, for the John Rentis, Ford STA visit 06/23/99.

The most recent Ford PPM data base shows the following:

1. May '99, Ford Plant 6653A- Bordeaux Auto Trnsmn returned (2) Ford Part Number F7LP_7F293_AA Sensor Assy-Transm Man LVR Pos.305 (TRS part number 2TS3-1) out of a recival of 36,000, for 55 PPM.

Please provide failure mode, cause, corrective action update summary-

Mike DeMattia/ Alan Johnson, 06/24/99

2. May '99, Ford Plant 0264F- Castle Bromwich K200 Assy Plant returned (4) Ford Commodity S350- Sensor (Non-Emission) (CAS part number 45557-1) out of a recival of 250,000 , for 15 PPM.

Please provide failure mode, cause, corrective action update summary-

Ken Tolbert/ Sasha Brishkovski, 06/24/99

Thanks,

CONFIDENTIAL

Jim Watt

Jim Watt, QRA, msgid: jw02; mail station 12-33; page
(508) 236-1010, no. (0696)
ph (508) 236-1719;
fax (508) 236-3153

CONFIDENTIAL

NORYL GTX 830

MELT TEMP: not available

Auto Ignition Temp: 914°F
540-580 °F Hold Temp.

KAPTON

MELT TEMP: no melting

FLASH POINT: not applicable
chars but does not burn
~~stable~~

3037

3378

IF WE ALSO INVESTIGATING SWITZER APPARIL
AND ^{USING SPECIALIZED INVESTIGATIVE TECHNIQUES} DEMONSTRATE THE ABILITY OF
THE 92-8-94 TOWN CAR BRASS FUND
TO CONSIDER ^{CHIEF} EXCERPT SPECIMEN
PRELIMINARY ^{AND} FIELD RETURNS ^{AND}
~~AND~~ - DURING THE STRIKE YOUNG
SAMPLES HAVE ^{BEEN} APPEARED IN SEVERAL

PASSAGE FURTHER WITH BRASS FUND
LETTERS. ^{HOWEVER,} ~~RESEARCH~~ LAB TESTING

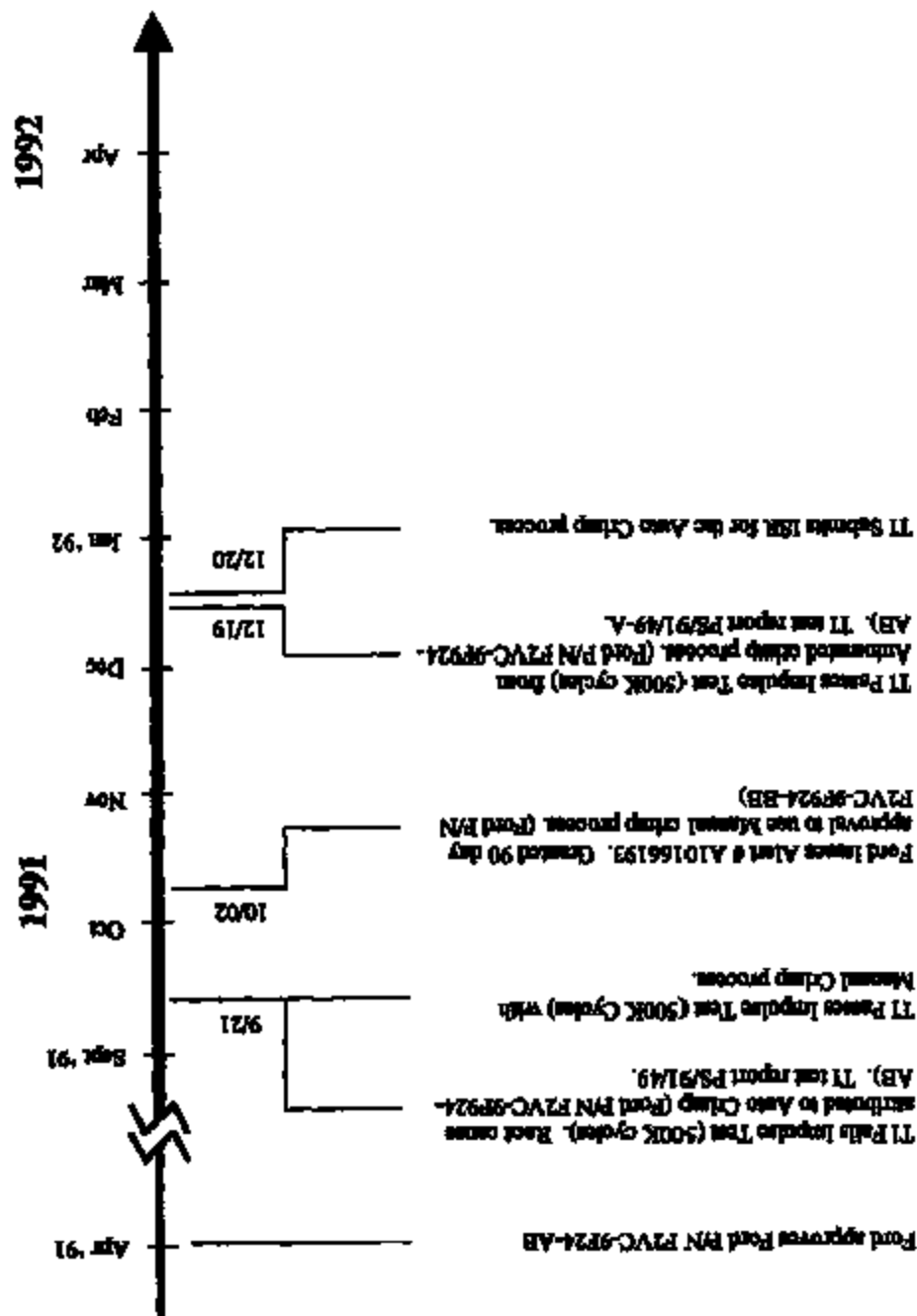
AND NOT RECENTLY TAKEN IN BRASS
WITH ^{NEW} BRASS FUND LETTERS & 'OLD'
BRASS FUND IS BEING TESTED TODAY

SOME OF THE FURTHER EXAMINATION
EVIDENCE OF BEING WORK OUT THROUGH
EXPERIENCE TO ^{ONLY INVESTIGATIVE} ~~REPORTED~~ ^{NOTICE} ON THE AND
THAT ALTHOUGH IT IS A ^{APPEARANCE} ~~QUANTITY~~ ^{ISSUE}



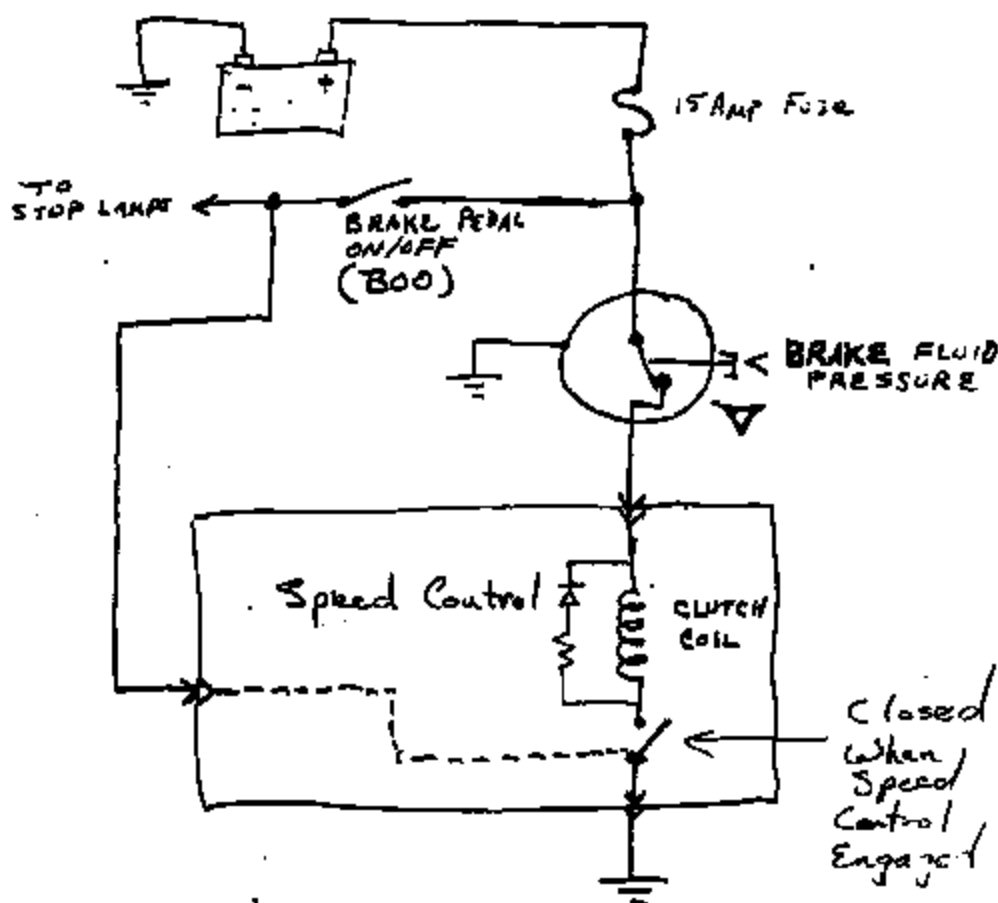
Ford - Electronic Speed Control Deactivation Pressure Switch
TI P/N 77PSL Series

Timeline: J2VC-9F924-AB (TI P/N 77PSL2-1)



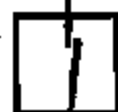
Brake Pressure Switch Function-

- Provide power to Speed Control Clutch circuit.
Clutch engages servo-motor to pull throttle cable.
- Provide redundant sensing of brake application independent of the primary system deactivation mode by disconnecting power to clutch circuit causing servo-motor to release throttle cable.
 - Under Hard Braking only
 - Stop lamp signal is primary (normal braking)



PRESENT

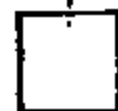
Brake
Lamp
Circuit
(VBAT)



NC
BRAKE SWITCH



EM
CLUTCH



CRUISE
CONTROLLER

SECTION ONE 001-02
SECTION TWO 001-02
SECTION THREE 001-02



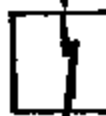
PROPOSED

Brake (VBAT)
Lamp
Circuit

N/O
RELAY



CRUISE
CONTROL
INPUT



NC
BRAKE SWITCH



EM
CLUTCH

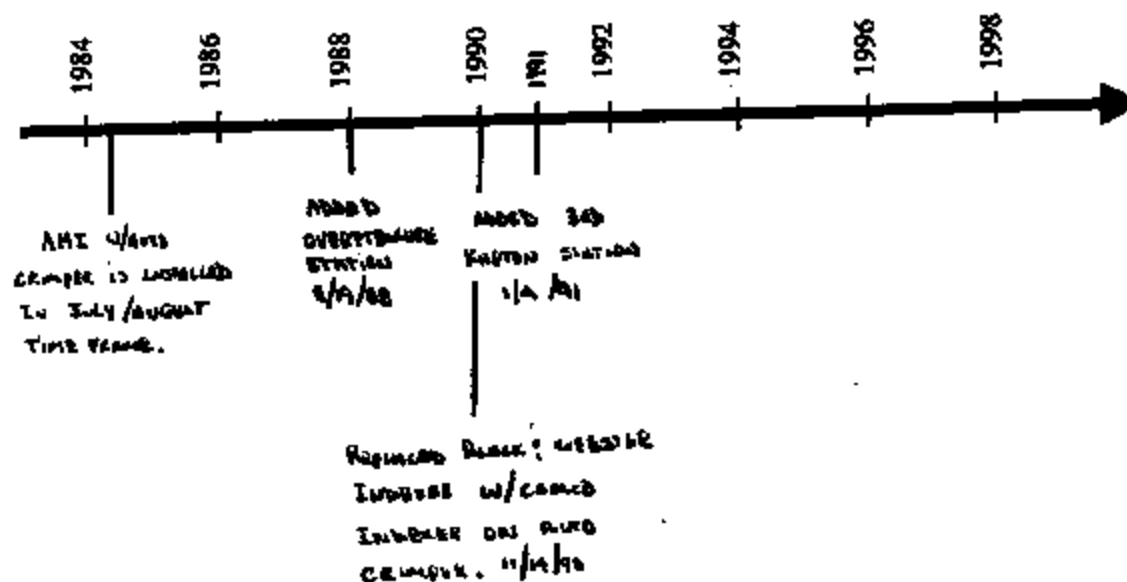
ACCESSIBLE?



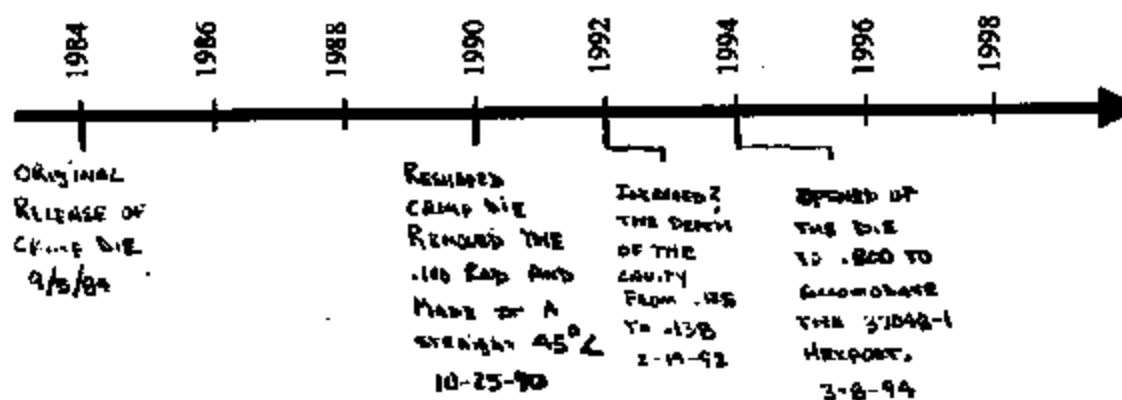
CRUISE
CONTROLLER



Timeline: Equipment / Process Evolution



Timeline: Crimp Tool #1 Changes

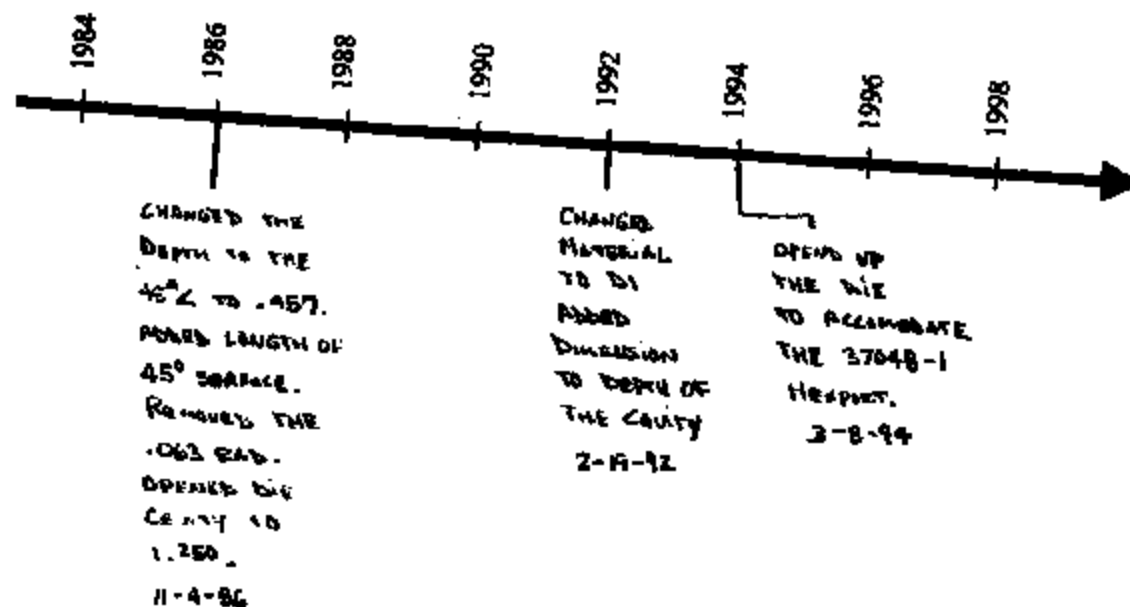




Ford - Electronic Speed Control Deactivation Pressure Switch
TI P/N 77PSL Series



Timeline: Crimp Tool #2 Changes

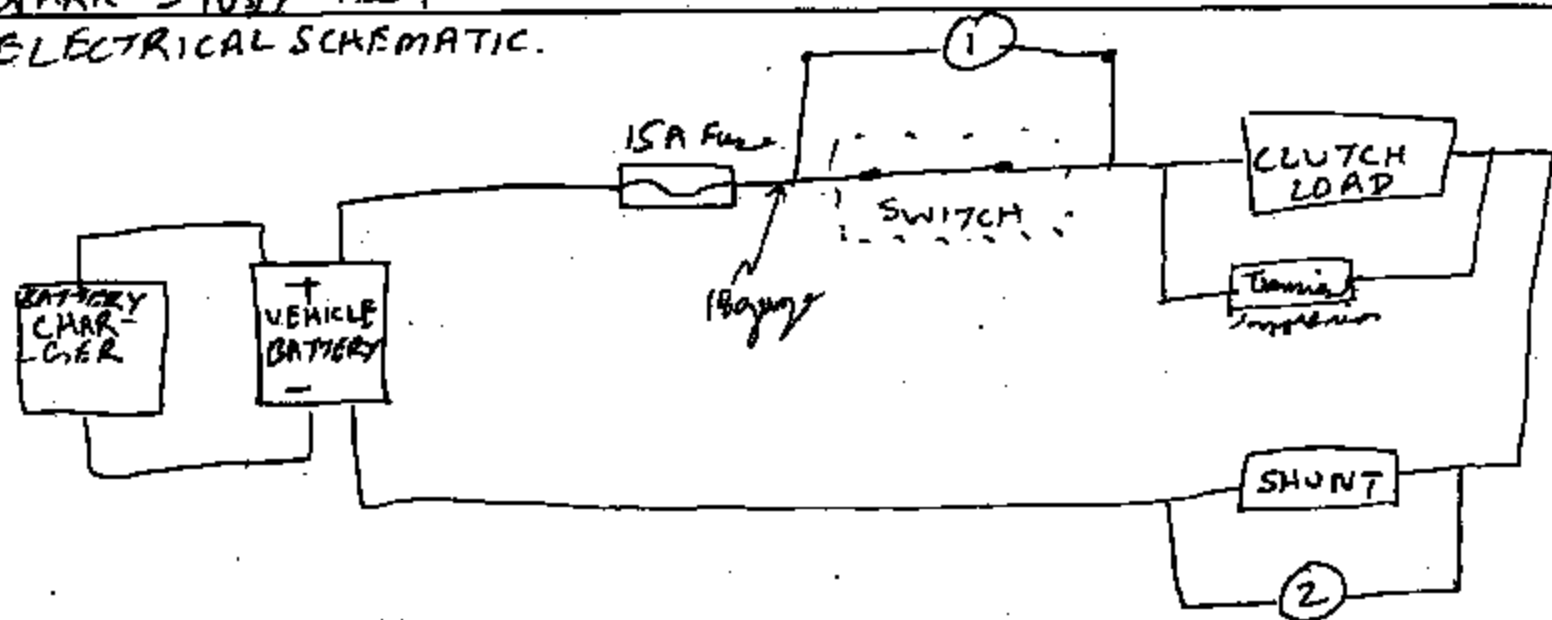




22-141 30 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS

SPARK STUDY TEST ELECTRICAL SCHEMATIC.

AR



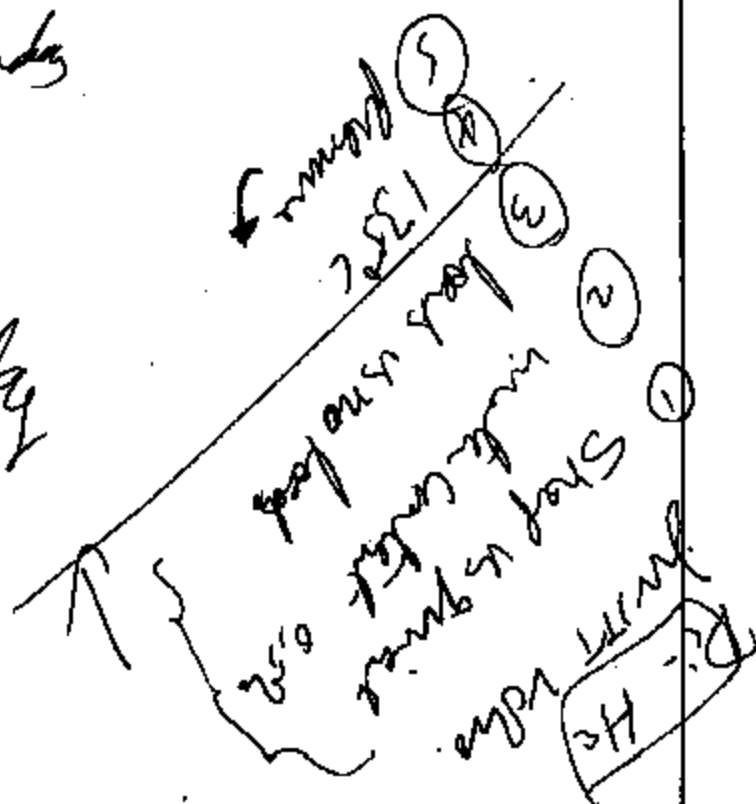
- Channel ① = Voltage drop across switch
② = Current through switch
③ = Pressure transducer on manifold

Cycling supply.

6 yds / 900 4 mds
5 day.

5 day } 10 day
5 day }

16 turns/mile.



23-141 24-141 25-141 26-141 27-141 28-141 29-141 30-141 31-141 32-141 33-141 34-141 35-141 36-141 37-141 38-141 39-141 40-141 41-141 42-141 43-141 44-141 45-141 46-141 47-141 48-141 49-141 50-141 51-141 52-141 53-141 54-141 55-141 56-141 57-141 58-141 59-141 60-141 61-141 62-141 63-141 64-141 65-141 66-141 67-141 68-141 69-141 70-141 71-141 72-141 73-141 74-141 75-141 76-141 77-141 78-141 79-141 80-141 81-141 82-141 83-141 84-141 85-141 86-141 87-141 88-141 89-141 90-141 91-141 92-141 93-141 94-141 95-141 96-141 97-141 98-141 99-141 100-141

WERS

Part # / changes
Dren. → B. K. Bengt.

PK.

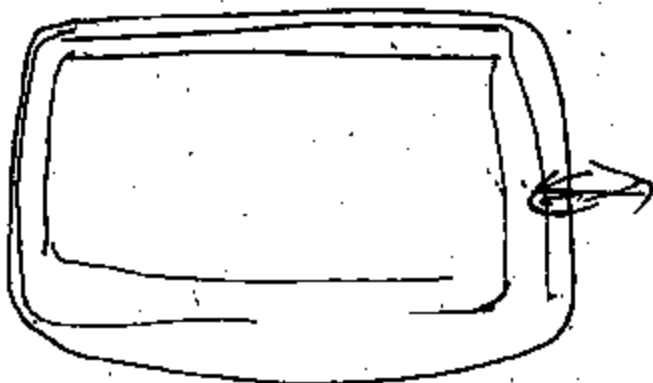
→
Kardifronttest mit be reworked

video optical evidence of spark.
Körper Keryllin Com. Anker around in be schuld.

22-141 20 2000
22-142 100 2000
22-143 200 2000



- ① Keep on cycling to undertake other
positive mode.



- ② Lock it delta from the weekend date
for 2 positive modes.

Monday's market
and

- ③ D-ration: first suggests put to them.

22-141 40 SHEETS
22-142 100 SHEETS
22-146 200 SHEETS



Mark's CGIS Date

IS/IS NOT
Vehicle Town Car

① DOW MTG.

② WED

③ FRI/MON

517
352
9980

3745

Review 50h

Open memo
on truck. 9 pages
into Veh Test plan.

A2 & put into
date sheet

① VEHICLE TEST - AVT

② PUMPING CURRENT THAWKIT
MANIFOLD - AVT

③ CONTINUE TALE NPAAT
ANALYSIS - CL

④ whyhm ?? - CL

⑤ T.I test parts analysis - CL

⑥ SPARK Test - loose T.I.
12Vdc.

⑦ DOE DWG TO MP, SR.

⑧ 3Amp checked.

⑨ Got 2 months. NAPA again with head
with light 1/2/2.

⑩ Contaminant - not mentioned directly
at the only. plunger's sticking... FB

⑪ Heater Switches
ramps



22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS

✓ ① ~~FAX~~ ^{steps} ~~to the~~ ^{working} core team e-mail

✓ ② 2 pgs on known items - PSE - (p/s) / red.

Ab horn
517
552
9980

③ status of test
- signs

④ Depart letter - / used
⑤ p/n days. Call with 1719

728
1075x
1095x
1200x
1209x

X return of p. with may ② / ③ core team. 1/2 hr.
~ paper in & out in detail - share.

FEI
↑ 1213x2 ↑

TL-NHTSA 019028

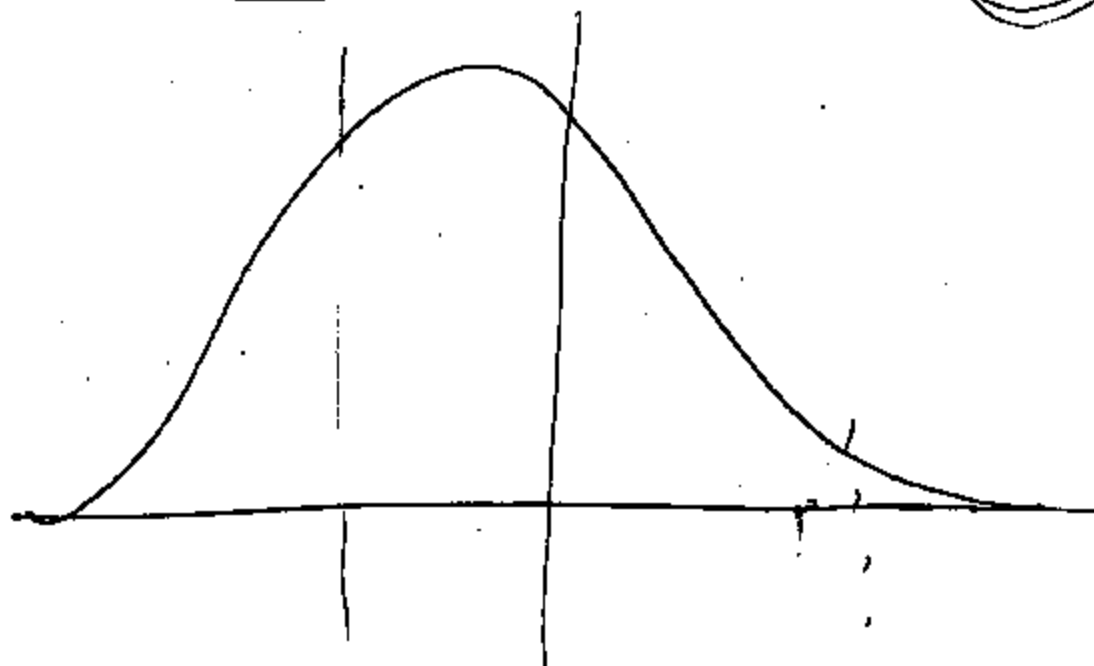
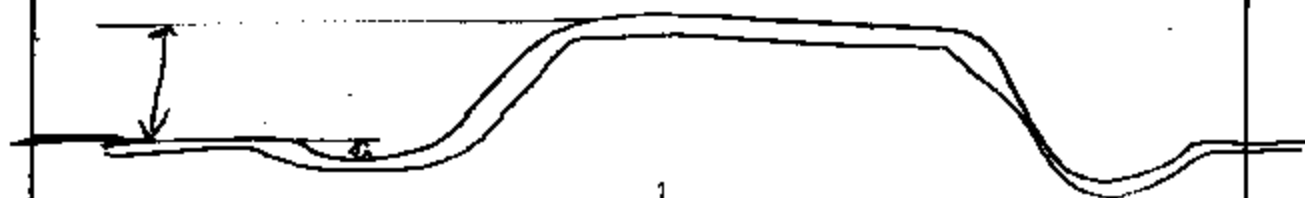
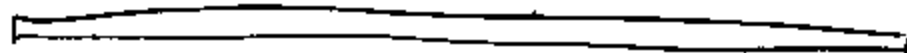
To To
Need to grade
30 feet/month.

What can create fire

System for less than 100
Get 200 in team

20-101
20-102
20-103
20-104

20-101
20-102
20-103
20-104



TI-NHTSA 019030

AZ12.

WHO CAN WE GET SOME OF THE
EARLY FAILURES FROM THE TI TEST.
WANT TO GET THEM STEVE LAROCHE,

mid-April - root cause identified
: corrective action in place
⇒ 2 weeks for final definition.

DOE

TI + Diment.

Dreams

increase life dramatically

Transducer ??

Not convinced it's still working

Hot + caution relation

List of tests - buy them

~~2000~~

ABS : 300,000

Re-look - Please W&L

(Fred Cole
V-nick)

to increase
Need to 1w. life

97 Ground V, 2
2 years old

major 5/6 years
old

- ① Quantity wear
change technique
- ② 2-3% life
improvement

- ③ DOE
- ④ P.T. 9M
- ⑤ Ford. POW.

- ⑥ Controlling 1/2 year
to 1 year

Five Nerve

Wing 1/2 SA

① DOW has to come in to explain problem
- ~~Greg~~ Stevens
Greg

② Need experiments to accelerate Kroton
breakdown. ATIA. test 1200 hrs
- Dupont came embellished

DoE

① - now
vs
quiet

② - temp

③ - moisture

- layering/kroton

④ - salt - now

Need 2-3x life. Check for others.

nothing that
mechanical know
work

⑤ Will do from system analysis

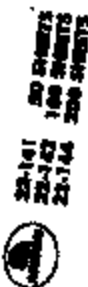
Test Review meeting every 2 weeks.

① Need a target skill to have
reflection in place in 2 months from
with 3A review next week
i.e. review regular.

- maybe relay.

Same like - orange base ✓
elated 1/2/10
7 (kept in 1/2/10) because
check
think me.

Ken Johnson has got this to
know.



Meeting

Norm LePinto

Ex Mon Drug Off D/A/A
3 Parklane Blvd. P. West

DOW.

Wed

2 PM

3A Ø39

25-141
25-142
25-143
25-144



12 50 ^{VA} RRY $\leftrightarrow$
60 1/4 $\leftrightarrow$
500 N A man $\leftrightarrow$
~~1000~~ 1000 sec min $\leftrightarrow$



living talk in person, planned - Steve
Wednesday meeting with Joe Nemi

Mr. Jack Langer ↔ Craig Eyring from VC
Chuck Teske ↔ Doug Eyring - Towla
Ann O'Neill ↔ pretty Direct LVC
(UTA)

Wed Joe Nemi
Bill Brangish Anti Lobby office
Steve - F. officers

GOT to do
more

Joe with counterjacking & wheels/breakdown

Tere, Pete Jones 248-340-3239

Andy Fan # 3745

~~Cory~~
Cory Rm 2247

Activation. no problem.

Activation while being X-ray.

John Joyce → 17.
Antine

Intermet & can.

Sicad.

PO 327

20-141
20-142
20-143
20-144

20-141
20-142
20-143
20-144



HV~

8 .196
1K

04 / 6042044
414
3700

Steve Rivas, name, number, etc.
page - 1 -
over files.

on vehicle test plan.

Letter by

~~James D. Nichols~~
~~Resident~~

22-141 100 2400175
22-142 100 2400175
22-143 100 2400175



AB
Unreadable

ALL T.C.s
AB

need to know TC
in these cases

AB / non-AB

6, 3,

px 758158 ^{Leak} ^{Concave}
Work plan

Production
Structure

or T.T. test

Brake Fluid depleting inhibitors
SAE paper Improved Brake Fluid

Mineral Filled Nylon $\rightarrow$ melts conductive.

22-141
22-142
22-143
22-144



Chloride to Contamination list of DF
contamination

B; K Drangyk

2809,

See jobs all the time.

26300 $\rightarrow$ pressure

Bright is a waste source of ^{down of} conductors

problem with brake fluid - bright

D.B.N.Hy

acetic acid pre-wash - clean wash

92/53 Etophorm

chem phosphate red of cell
inlays.

AC 00E 10206181 000

4/30/52

L3 11
F2 AC to

ENS3 CV/Lm.

Release of

16000-1500
new 12000



22-1-61 50 sheets
22-1-62 100 sheets
22-1-64 200 sheets