

RQ03-008

FORD

**FORD 12/12/03 LETTER
TO ODI 4 BOOKS**

ATTACHMENT L

**PART 4 OF 4
BOOK 2 OF 4**

=>

ENG PART: YF1T 13480 BA _____ ORIGIN: WERS REGION: _ USG STAT: _
 Eng Name: SW ASY-STP LP PT: _ PTO: _____ VL: _
 Svc Part: YF1Z- 13480-BA Replaces: N Is Replcd: N USG IND: _

P In Out

t	Vl	Yr	Yr	Feature Descriptions	Feature Descriptions
C	DD	01		TAURUS/SABLE	4 DOOR STATION WAGON
C	DD	00		TAURUS/SABLE	ALL SEDANS
C	DD	00	00	TAURUS/SABLE	ALL WAGONS
T	U8	03		LINCOLN AVIATOR	

F1=Help F4=Prv F5=Nxt F9=UAFB F10=EXEA F11=EPEA F13=RPLD F14=RPLG
 RECORD FOUND PD01192

S>>
 SERVICE PART: YF12- 13480-BA SWITCH ASY - STOP LIGHT
 RECEIVING LOCATION: DEMAND GROUP:
 CUSTOMER TYPE: BACKCAST: Y
 SDI Code:

A	C	MONTH	YEAR	Quantity	Replaced Part Number	Message
		04	2002	148		
		03	2002	212		
		02	2002	170		
		01	2002	135		
		12	2001	114		
		11	2001	137		
		10	2001	193		
		09	2001	395		
		08	2001	671		
		07	2001	765		
		06	2001	1763		

F1=Help F4=FirstRecLoc F5=FirstCustType F6=FirstYear
 MORE RECORDS AVAILABLE

PD01192

From: Lysik, Kevin (K.M.)
Sent: Tuesday, July 02, 2002 12:15 PM
To: Lysik, Kevin (K.M.); Wexler, Donald (D.D.); Patel, Bharat (B.J.); Villarruel, Nemesio (N.); Schmidt, Norm (N.G.); Aghli, Max (M.); Kornosky, Dale (.); Stoffelmer, Dale (D.O.); Beard, Dave (D.F.); NAC Bldg.#2 23A01 (14)
Co: McCann, Mike (M.J.); Setill, Frank (F.E.)
Subject: RE: 2000 D188 Grease on Stop Lamp Switch

Agenda: 7/3/02, 2-3PM, 23A01

- 1) Review and Update Open Issues List
- 2) General Discussion

—Original Appointment—

From: Lysik, Kevin (K.M.)
Sent: Monday, June 10, 2002 2:25 PM
To: Lysik, Kevin (K.M.); Wexler, Donald (D.D.); Patel, Bharat (B.J.); Villarruel, Nemesio (N.); Schmidt, Norm (N.G.); Aghli, Max (M.); Kornosky, Dale (.); Stoffelmer, Dale (D.O.); Beard, Dave (D.F.); NAC Bldg.#2 23A01 (14)
Co: McCann, Mike (M.J.); Setill, Frank (F.E.)
Subject: 2000 D188 Grease on Stop Lamp Switch
When: Wednesday, July 03, 2002 2:00 PM-3:00 PM (GMT-05:00) Eastern Time (US & Canada).
Where: Bld#2 - 23A01

Purpose: To Define Root Cause of Stop Lamp Switches that fall after the original switch was replaced on FSA 01808.

Approximately 12,000 vehicles have had repeat repairs made after the recall was performed.

Agenda for each meeting will be sent in advance

All issues will be captured on Open Issues List

From: Paluzzi, Felicia (F.F.)
Sent: Thursday, July 18, 2002 3:14 PM
To: Lysik, Kevin (K.M.); Heath, David (D.E.); Komoaky, Dale (.); Aghilli, Max (M.)
Cc: Maimin, David (D.L.); Hayduk, Mark (M.S.); Koryha, Andrew (A.D.); Lovelace, Maria (M.E.)
Subject: RE: Brake lights staying on 2001 unit

FYI

Andy,
How do we go about getting this switch back for analysis?

Regards,

Felicia Paluzzi

Atlanta Assembly Plant - Taurus/Sable P.V.T.
Chassis Engineer
(404) 669-1720
Ford Net: 769-1720
Pager (784) 296-1046
Fax (404) 669-1573

—Original Message—

From: Koryha, Andrew (A.D.)
Sent: Thursday, July 18, 2002 2:55 PM
To: Paluzzi, Felicia (F.F.)
Cc: Koryha, Andrew (A.D.); Maimin, David (D.L.); Hayduk, Mark (M.S.)
Subject: Brake lights staying on 2001 unit

Felicia, can you review this?

CSQI500 CQIS Indicator Summary 07/18/02 14:47:29 5 of 56

Rpt#: 2GQJT007 CQD Rpt: 07/17/2002 Odom: 0 M
Rvw: _ File: _ Folder: _ Images: 2 Print Srry/Disp Detail(P/D): _
Vehicle: 2001 TAURUS,SE SVG ,SEDAN 1FAPP55UX1G169881 Bld: 12/08/2000
Engine: 3.0L EFI Calb: 1DD1290A Trans: AX4S Axle: FWD 3.77 A/C: YES
Dealer Id: 07313 Washington Ford, Inc. Ph#: (724) 223-5100
State: Pennsylvania City: Washington Orig/Caller: MARK HAYDUK
Symptom: 2 01 2 28 ELECT.,LIGHTING SYS,EXT. LIGHTING,STOPLAMPS
Addl Sym: St: CCRG/EPRC: 8 Rvw: A Dt: 07/17/2002
Fix: Caus. Comp: SWITCH ASY-STOPLIGHT - RPL Condition Code: 42

Region Code: 44 Region Name: Pittsburgh - 44

CONCER CUST. STATES: BRAKE LIGHTS STAY ON ALL THE TIME.
REPAIR * TECH. CONFIRMED CONCERN. FOUND BRAKE LIGHT SWITCH STUCK ON. TECH
REPLACED THE BRAKE LIGHT SWITCH TO RESOLVE THE CONCERN.
*** FQE REVIEWED SWITCH AND FOUND THAT THE CONTACT BLADES MELTED IN TO**
THE SWITCH COVER APPROX. 21 MM LONG. OUTSIDE OF COVER IS MELTED WHERE
BLADE WAS IN CONTACT.
*** SWITCH DOES NOT HAVE ANY OIL FILM ON IT. INSIDE OF PLUNGER AREA HAS**
A SLIGHT BIT OF HEAVY LUBRICANT LOOKING MATERIAL WHERE THE PLUNGER
GOES THRU THE SWITCH BODY.

RO83-868 8649

* VEHICLE HAS NO OTHER REPAIRS AND IS A 2001 WHICH WAS NOT RECALLED UNDER 01908.

* SWITCH BEING RETURNED TO MLOVELA1 RELATED TO ECI ASSIGN. 02-61.

* PHOTO'S AVAIL. VIA CQIS IMAGING.

ADD-ON 07/17/2002 01:32PM MARK HAYDUK CQ - CD&A - CQD - FQE

* VEHICLE HAS ADJUSTABLE PEDALS.

* MARK HAYDUK - PITTSBURGH FQE - 724-822-4342

http://www.mso.ford.com/fcsd/vsp/cgi-bin/cqis_fetch_image.cgi?image_cntrl_nbr=23130267

http://www.mso.ford.com/fcsd/vsp/cgi-bin/cqis_fetch_image.cgi?image_cntrl_nbr=23130268

Andrew D. Konyha

Taurus/Sable Home Office Product Concern Engineer

PVT and Field Support, VS&P

Diagnostic Service Center Building 2 Cube 586

1800 Fairlane Drive Allen Park, MI 48101

Phone (313) 594-8941 Fax (313) 337-8337

akonyha@ford.com

From: Marzoni Jr., Ted (T.J.)
Sent: Thursday, November 14, 2002 12:24 PM
To: Pruitt, Dianna (D.L.); Celentino, Michael (M.F.)
Cc: Macpherson, Barb (B.M.); Keefer, Laura (L.A.); Marzoni Jr., Ted (T.J.); Komosky, Dale (.)
Subject: FW: Chassis Change Control Items for Thursday 11/14/02

Dianna/Mike,

Can we simply take the original RCT for this, mark it up for the increased tooling, and then initial it for our confirmation, rather than providing an all new RCT for this? If Dale has reviewed and agreed with the numbers (which he appears to have concurred per these notes), then I think this would be an acceptable solution to move this one on, rather than taking the time to submit another RCT. We can use these notes as back-up authority. Your thoughts – Thanks!

Ted Marzoni
Project Management Supervisor
Taurus/Sable Program
Telephone: (313) 621-0672
Fax Number: (313) 621-4571
E-Mail: tmarzoni@ford.com

—Original Message—

From: Aghli, Max (M.)
Sent: Thursday, November 14, 2002 8:54 AM
To: Celentino, Michael (M.F.)
Cc: Pruitt, Dianna (D.L.); Macpherson, Barb (B.M.); Keefer, Laura (L.A.); Marzoni Jr., Ted (T.J.); Komosky, Dale (.)
Subject: FW: Chassis Change Control Items for Thursday 11/14/02

Dale, we need Mike Celentino's approval for Dianna to process the notice NC00 E 11322494 001 which is ready to be released.

Mike, would you please review Dale's note below and let us know. Thanks.

Regards,
Max Aghli
D186 Front Brake System
(313) 390-6585

—Original Message—

From: Komosky, Dale (.)
Sent: Wednesday, November 13, 2002 6:11 PM
To: Marzoni Jr., Ted (T.J.); Aghli, Max (M.)
Cc: Pruitt, Dianna (D.L.); Macpherson, Barb (B.M.); Keefer, Laura (L.A.)
Subject: RE: Chassis Change Control Items for Thursday 11/14/02

Attached are the costs we received and verified with Teleflex which were missed for the orbital forming operation of the new stepped pin. Unfortunately we have two pedal ratios which each require unique pin locations and fixtures for the orbital spin over operation being deployed. Teleflex did in fact obtain multiple quotes to get the cost down to this level. What is required next of us?



Orbit forming of
Taurus boosters...

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

From: Marzoni Jr., Ted (T.J.)
Sent: Tuesday, November 12, 2002 7:20 AM
To: Aghil, Max (M.)
Cc: Pruitt, Dianna (D.L.); Macpherson, Barb (B.M.); Komosky, Dale (D.); Keefer, Laura (L.A.)
Subject: RE: Chassis Change Control Items for Tues 11/12

Max,

Noted - will do! Thanks!

Ted Marzoni
 Project Management Supervisor
 Taurus/Sable Program
 Telephone: (313) 621-0672
 Fax Number: (313) 621-4671
 E-Mail: tmarzoni@ford.com

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

From: Aghil, Max (M.)
Sent: Monday, November 11, 2002 6:09 PM
To: Marzoni Jr., Ted (T.J.); Pruitt, Dianna (D.L.)
Cc: Macpherson, Barb (B.M.); Komosky, Dale (D.); Aghil, Max (M.); Keefer, Laura (L.A.)
Subject: RE: Chassis Change Control Items for Tues 11/12

Team,

C11322494 - stop lamp switch stick - supplement for funding? (Max)

Dale and I have the funding information from Teleflex on orbit forming, but the break down is not clear. Could you please reschedule this item for the next review. We should have it resolved by then (we hope). Thanks.

Regards,
 Max Aghil
 D186 Front Brake System
 (313) 390-6585

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

From: Macpherson, Barb (B.M.)
Sent: Monday, November 11, 2002 12:44 PM
To: Aigis Zaperackas (A.) (E-mail); Blyashov, Russ (R.); Chardenet, Brett (B.A.); Doyle Miller (S.D.) (E-mail); Edwards, Percy (P.); Pretz, George (G.C.); Gulbenberg, John (J.B.); Hamarik, Dave (D.C.); Johnson, Brad (B.J.); Kathy Johnson (K.D.) (E-mail); Keefer, Laura (L.A.); KLEE49 was deleted 20021108; Komosky, Dale (D.); Macpherson, Barb (B.M.); Max Aghil (M.) (E-mail); Nechall, Valeria (V.L.); Muhammed Khan, Aamir (A.K.); Peterson, Rodney (R.L.); Rassa, Martin (M.P.); Rothamel, David (D.H.); Vinas, Jaime (J.); Yeldin, Morey (M.R.)
Cc: Marzoni Jr., Ted (T.J.); Metas, Pamela (P.R.); Pruitt, Dianna (D.L.); Schmeier, Scott (S.T.); Winkel, David (D.A.); Lee Corney (L.B.) (E-mail)
Subject: Chassis Change Control Items for Tues 11/12

Please support meetings or send e-mail updates:

7:30 meeting - 03 MY

03 pre-pink

C11435337 - INFO Max/Dale - delete adj pedal label on door trim on fleet vehicles (PVT)

11/12 MCR deck

C11418823 - Splash shield change for 03 brake mcr (amber) - Dianna/Pam - please reject per Chassis.

C11435805 - delay brake MCR change (Scott)

Running Change Deck

C11423893 - Sta bar link (Percy) - David Winkel - RCT back?, Percy - need trial status

C11433088 - INFO Rod/Brett - Torque revision - knuckle to strut (PVT)

C11228200 - P/S pump shaft seal - (John/Lee)

C11322494 - stop lamp switch atlok - supplement for funding? (Max)

C11408158 - park brake pedal revision for robustness (George) - supplements001 & 002 in P status - need drafting support.

C11397835 - INFO John - Fresh eyes - p/s convolute (PVT)

C11432403 - Moved to 03 deck from 04 - steering column boot (John)- rot submitted today, Dianna/Pam - please schedule for rev Thursday.

10:00 meeting - 04 & 05 MY

04 J1 deck

C11429502 - Service release ABS (Marty/Russ) - notice in P status - need drawings from Bosch?/drafting hold up?

C11422844 - Vacuum revisions (Doyle/AI) - 000 still in A status - note sent to drafting for timing.

04 Running change deck

C11425981 - durability tie rod (John) - requested closure - need durability concurrence.

05 Deck

C11372707 - tram ignition switch (John/Lee) - chassis 000 & 001 supplements in P status - why 2 supplements?

Sincerely,

Barb Macpherson

D186 Chassis PMT Leader (Mon, Tues & Thurs)

Phone/Fax: (313) 32-21157

From: Lyalk, Kevin (K.M.)
Sent: Monday, June 10, 2002 7:43 AM
To: Aghill, Max (M.)
Subject: RE: D186 Adjustable Pedal Booster Pin

Max: Is the adjustable pedal booster pin another name for booster rod?

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

From: Aghill, Max (M.)
Sent: Sunday, June 09, 2002 10:18 PM
To: Schmidt, Norm (N.G.); Greenwald, Jerry (J.); Lyalk, Kevin (K.M.)
CC: Kromsky, Dale (.); 'Greg Kolwich'; 'Braniff, Greg - Troy'; Aghill, Max (M.)
Subject: D186 Adjustable Pedal Booster Pin
Importance: High

Norm/Kevin/Jerry, we are considering eliminating the heat treatment (case hardening) on the adjustable pedal booster pin and I am writing to find out the history behind it (don't want to overlook anything). Greg Kolwich (KSR) commented that it goes back to days when a different switch that was sensitive to wear was used. With the currently used "contact" switch, we wonder whether wear would be an issue.

Teleflex has performed testing that show structural integrity is not an issue and Greg Kolwich confirmed.

Please comment as soon as possible. Parts are being built on Monday.

Regards,
Max Aghill
D186 Front Brake System
(313) 390-6585

From: Lyalk, Kevin (K.M.)
Sent: Monday, June 10, 2002 3:17 PM
To: Aghili, Max (M.)
Cc: Komoosky, Dale (-); Schmidt, Norm (N.G.)
Subject: FW: D186 Adjustable Pedal Booster Pin

Max: You may want to discuss this with Dale Stolteimer.

-----Original Message-----
From: Stolteimer, Dale (D.O.)
Sent: Monday, June 10, 2002 3:14 PM
To: Lyalk, Kevin (K.M.)
Subject: RE: D186 Adjustable Pedal Booster Pin

SAME LOGIC

-----Original Message-----
From: Lyalk, Kevin (K.M.)
Sent: Monday, June 10, 2002 3:14 PM
To: Stolteimer, Dale (D.O.); Beard, Dave (D.F.)
Cc: Greenawald, Jerry (J.)
Subject: RE: D186 Adjustable Pedal Booster Pin

Dale: The proposed part to change is the pin that the switch rides on. The booster rod is not changing. - Kevin Lyalk

-----Original Message-----
From: Stolteimer, Dale (D.O.)
Sent: Monday, June 10, 2002 3:08 PM
To: Beard, Dave (D.F.); Lyalk, Kevin (K.M.)
Cc: Greenawald, Jerry (J.)
Subject: RE: D186 Adjustable Pedal Booster Pin

I am glad that this question is being asked.

ANY VEHICLE USING A LOSS TRAVEL BOO (BRAKE) SWITCH NEEDS THE HARDENED PUSHROD.

(Pollak makes the Loss travel switches)

ANY VEHICLE NOT USING A LOSS TRAVEL BOO (BRAKE) SWITCH ELIMINATES

- 1. The Hardened Pushrod**
- 2. The CC's on the pushrod for Brake Switch activation**
- 3. the machining to the push rod**
- 4. METHODE MAKES THE PLUNGER SYTLE SWITCH that attaches to the pedal box and actuates off of a flag on the brake pedal..**

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

From: Beard, Dave (D.F.)
Sent: Monday, June 10, 2002 9:20 AM
To: Stoltschmer, Dale (D.O.)
Subject: FW: D186 Adjustable Pedal Booster Pin

Dale, does this sound familiar?, and if so, then do our current switches require this hardening?

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

From: Greenawalt, Jerry (J.)
Sent: Monday, June 10, 2002 9:14 AM
To: Beard, Dave (D.F.)
Subject: RE: D186 Adjustable Pedal Booster Pin

Yeah, I forgot you just started. Its the BOO switch, or brake switch.

Jerry Greenawalt

D186 Electrical Systems Engineer
Building #2 Cube 28C87
818.500.8838

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

From: Beard, Dave (D.F.)
Sent: Monday, June 10, 2002 9:13 AM
To: Greenawalt, Jerry (J.)
Subject: RE: D186 Adjustable Pedal Booster Pin

Neither I, does this have any relation to a switch?

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

From: Greenawalt, Jerry (J.)
Sent: Monday, June 10, 2002 8:46 AM
To: Heath, David (D.E.); Beard, Dave (D.F.)
Cc: 'Brantf, Greg - Troy'; Lysik, Kevin (K.M.); Aghili, Max (M.)
Subject: RE: D186 Adjustable Pedal Booster Pin

Dave's,

Can either of you comment? I have no history on this part.

Jerry Greenawalt

D186 Electrical Systems Engineer
Building #2 Cube 28C87
818.500.8838

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

From: Aghili, Max (M.)
Sent: Sunday, June 09, 2002 10:18 PM
To: Schmidt, Norm (N.G.); Greenawalt, Jerry (J.); Lysik, Kevin (K.M.)
Cc: Komesky, Dale (.); 'Greg Kolwicz'; 'Brantf, Greg - Troy'; Aghili, Max (M.)
Subject: D186 Adjustable Pedal Booster Pin
Importance: High

Norm/Kevin/Jerry, we are considering eliminating the heat treatment (case hardening) on

the adjustable pedal booster pin and I am writing to find out the history behind it (don't want to overlook anything). Greg Kolwich (KSR) commented that it goes back to days when a different switch that was sensitive to wear was used. With the currently used "contact" switch, we wonder whether wear would be an issue.

Teleflex has performed testing that show structural integrity is not an issue and Greg Kolwich confirmed.

Please comment as soon as possible. Parts are being built on Monday.

Regards,
Max Aghili
D186 Front Brake System
(313) 390-6585

From: Lyelk, Kevin (K.M.)
Sent: Friday, August 09, 2002 2:10 PM
To: Komcsaky, Dale (.)
Cc: Aghill, Max (M.); Stollsteimer, Dale (D.O.); McCann, Mike (M.J.); Summers, Priscilla (P.L.); Avey, Ray (R.S.); Schmidt, Norm (N.G.); Lyelk, Kevin (K.M.)
Subject: D188 Brake Pedal Assembly

Date:

Dale Stollsteimer had done some investigation into the Littelfuse (Littelfuse is the stop lamp switch that was used before the adjustable pedals were released) stop lamp switch design parameters. It appears that the adjustable and fixed pedal stop lamp switch mounting pin may not have the same diameter as is needed for correct operation of the stop lamp switch. The Pollak stop lamp switch was designed as a drop in replacement for the Littelfuse switch as far as the interfaces with the booster rod and bushing are concerned.

Sketches from the previous switch engineer from 1979 show the stop lamp switch operating dimensions and its relation ship to the booster rod and bushing. We can share these sketches with you.

Additionally, go/no-go gages were located for the pin outside diameter and bushing inside diameter. We tried these gages on a current production fixed and adjustable pedal that I have on my desk. The go gage fit very tightly on the fixed pedal pin and would not rest in switch design position; the no-go gage worked properly. The go and no-go gage worked properly on the adjustable pedal.

The go gage would not fit onto the pin of the production pedal assembly that Dale had at his desk. This simple exercise just demonstrates the variability of the parts as manufactured.

The Teleflex and KSR drawing in Docman does not show the detail for the stop lamp switch and booster rod mounting pin.

I think it would be very beneficial to meet with Teleflex and KSR asap to review the pedal drawings and the stop lamp switch operating dimensions. We need to understand if we have the incorrect dimensions on the drawings or if we have a manufacturing issue. Please schedule a meeting during the week of August 12 with each supplier separately so we can go through the analysis.

I will be on vacation on Monday and Tuesday. Please contact Dale Stollsteimer or Mike McCann if you have any questions.

Thankal

Kevin Lyelk

Electrical Campaign Prevent Specialist- NA Car
Family Vehicles
313-24-85017

From: Greg Braniff [gbraniff@tfxauto.com]
Sent: Monday, July 08, 2002 8:00 AM
To: Lysik Kevin (K.M.)
Cc: Aghill Max (M.)
Subject: Re: D186 Wiring Samples



Mvc-001f.jpg



Mvc-002f.jpg

Testing is complete on your wiring samples. There were no "Failures" to speak of, but one of the samples kind of got wedged under the upper switch. Here is a picture. I'll return the samples the next time I am down there.

Greg Braniff
Teleflex Automotive
Ph 248-616-3107
Pager 248-998-0411
Cell 248-840-1840
gbraniff@tfxauto.com

----- Original Message -----
From: "Lysik, Kevin (K.M.)" <klysik@ford.com>
Date: Friday, July 5, 2002 1:08 pm
Subject: D186 Wiring Samples

> Greg:
>
> How did the rest of the adjuster cycle testing go? Were you able
> to run all 5 wiring samples? The next time you are in Dearborn
> could you return the wiring and the switches? Thanks for your help
> with the testing.
>
> Kevin Lysik
> Electrical Campaign Prevent Specialist- NA Car
> Family Vehicles
> 313-24-85017
>
>



NO23-008 8881



R083-888 8882

From: Lysak, Kevin (K.M.)
Sent: Friday, July 05, 2002 1:08 PM
To: 'gbraniff@theauto.com'
Cc: Aghill, Max (M.); Lysak, Kevin (K.M.)
Subject: D186 Wiring Samples

Greg:

How did the rest of the adjuster cycle testing go? Were you able to run all 5 wiring samples? The next time you are in Dearborn could you return the wiring and the switches? Thanks for your help with the testing.

Kevin Lysak

Electrical Campaign Prevent Specialist- NA Car
Family Vehicles
313-24-85017

From: maghill@ford.com
Sent: Friday, May 10, 2002 3:37 PM
To: leahy@ford.com
Cc: mpelton@ford.com; maghill@ford.com
Subject: Design Order Request # 2974

Type of request: Design Order Initialization

1. Design Order No: 2974
2. D.O. Title: D186 Adjustable Pedal Assembly w/ Two Plunger Switches
3. Initialization Date: May/10/2002
4. Engineer Name: Max Aghili
5. Engineers CDS: maghili@ford.com
6. Engineers Phone: 39-06585
7. Program Type: Program
8. Program Name: D186
9. Program Year: 2003
10. Work Task Number: F19AP
11. KO Date:
12. SI Date:
13. SC Date:
14. Milestone: FS
15. CFSC: 06.06
16. Expected Completion Date: 5/31/02
17. Responsible Area: (Car-leahy)
18. Design Order Description:
Study the feasibility of replacing the cantiliver pin switch (booster switch) with a second plunger switch to improve pedal feel.

From: Lyalk, Kevin (K.M.)
Sent: Thursday, July 11, 2002 8:07 AM
To: Aghli, Max (M.); Beard, Dave (D.F.); Komoaky, Dale (.); Patel, Bharat (B.J.); Schmidt, Norm (N.G.); Schramek, Joseph (J.E.); Setäl, Frank (F.E.); Stolteimer, Dale (D.O.); Villanuel, Nemeelo (N.); Waxer, Donald (D.D.)
Cc: Summers, Priscilla (P.L.); Lyalk, Kevin (K.M.)
Subject: Oil In Stop Lamp Switch

I wanted to clarify something I stated earlier about the oil in the switches.

The (5) switches (from repeat repairs) I had Central Lab analyze last week contained the same oil (grease) as was found on the switches analyzed for the 14D last year. However, the oil did not match the sample of grease I had supplied to the lab from Teleflex current production. Teleflex made a change to the grease last year. I am waiting for a response from PVT with the grease p/n and trade name so I can verify that the old grease matches the oil on the switch samples.

Kevin Lyalk

Electrical Campaign Prevent Specialist- NA Car
Family Vehicles
313-24-85017

From: Schmidt, Norm (N.G.)
Sent: Tuesday, May 07, 2002 2:48 PM
To: Kornosky, Dale (.); Aghill, Max (M.)
Subject: FW: Pedal Grease

Dale, Max,

I thought that Teleflex changed the grease in the drive motor mechanism as well.
What is the issue on the switch booster push rod alignment?

Sincerely,

Norm Schmidt

N. G. Schmidt
North American Car
Campaign Prevention - Brakes
Ford Motor Company
Building #2, Cube 24H98
MD 1218
Dearborn, Michigan 48121
Phone 313 32-36755
E Mail nschmidt@ford.com

—Original Message—

From: Lysik, Kevin (K.M.)
Sent: Monday, May 06, 2002 1:36 PM
To: Schmidt, Norm (N.G.)
Subject: FW: Pedal Grease

Norm: Can we discuss the rod angle issue?

—Original Message—

From: Heath, David (D.E.)
Sent: Monday, May 06, 2002 7:20 AM
To: Lysik, Kevin (K.M.)
Cc: Steiger, Robert (R.A.)
Subject: RE: Pedal Grease

Kevin,

Pollak should already have data on the new grease, WSB-M1C233-A. I believe we had them test this 1-1/2 years ago.

On a different subject, we really need your help in pushing Chassis to implement the change to booster rod angle on the adjustable pedal that I identified back in January. They are giving the PVT Chassis team a hard time and do not want to implement the switch position correction (bringing back to the same 0 degree angle as the fixed pedal). We are continuing to see repeat(including some buy back vehicles) and new repairs on the adjustable pedal that can only be corrected by adjusting the nominal angle. This results in stoplamps staying on and dead battery's, is intermittent in nature and will come and go as the other relative location of other parts in the system come and go in their tolerances (i.e sheet metal attaching holes, location of cowf relative to the dash panel etc.

David Heath

*Taurus/Bolt PNT
NAC Family E/E Systems
Ph. 404-669-1362*

RO03-005 0029

Jan: 404-669-1673
Pages: 888-517-9535

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

From: Lysak, Kevin (K.M.)
Sent: Thursday, May 02, 2002 2:04 PM
To: Heath, David (D.E.)
Subject: FW: Pedal Grease

Dave: FYI. ESA-M1C232-A was the grease on the spring that caused the recall. Looks like the gears still use it. It may be a good idea to get rid of it on the entire assy. Teleflex is looking into it.

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

From: Lysak, Kevin (K.M.)
Sent: Wednesday, May 01, 2002 3:23 PM
To: Beard, Dave (D.F.)
Cc: Stoltselmer, Dale (D.O.); Lysak, Kevin (K.M.)
Subject: FW: Pedal Grease

Dave: Please ask Pollak to advise the effect on the switch with the Proposed grease, WSB-M1C233-A. Need timing as to when they can respond.

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

From: Lysak, Kevin (K.M.)
Sent: Wednesday, May 01, 2002 3:19 PM
To: Aghil, Max (M.)
Cc: Schmidt, Norm (N.G.); Lysak, Kevin (K.M.)
Subject: Pedal Grease

Max: Please verify and forward to Teleflex.

Original Grease was ESA-M1C232-A for the Worm Gear, Drive Gear and Brake Worm Gear, and Spring

After Recall Grease was ESA-M1C45-A for the Spring. Gears remained using ESA-M1C232-A. Did we want to use ESA-M1C45-A also for the Gears?

Proposed Grease for Spring is WSB-M1C233-A. Do we want the same for the Gears?

Kevin Lysak

Electrical Campaign Prevent Specialist- NA Car
Family Vehicles
313-24-85017

From: Lyalk, Kevin (K.M.)
Sent: Friday, August 23, 2002 12:43 PM
To: Kornosky, Dale (.)
Cc: Aghill, Max (M.); Schmidt, Norm (N.G.); Schramak, Joseph (J.E.); Patel, Bharat (B.J.); Lyalk, Kevin (K.M.); Stollstelmer, Dale (D.O.); McCann, Mike (M.J.); Newell, Sean (S.M.)
Subject: Review of 2000MY Taurus/Sable - Employee's Car (With Photos)

Date:
Myself and Dale Stollstelmer reviewed a 2000MY Taurus with approx 40K miles on Friday. The employee works in 6-Sigma building and had told a co-worker that she had no stop lamps or was unable to shift out of park when the pedal was pressed. The 6-sigma center mechanic replaced the switch and she was able to drive the car home on Thursday evening. Dale and I reviewed the car on Friday morning.

Some information about the situation:

Adjustable Pedals
Build date: May 12, 2000
Recall 01908 was performed in April 2, 2001 at 14,714 miles
Switch removed from the car had oil present on the outer and inner surfaces, but NO noticeable damage - switch was functional when it was reinstalled. (See Photos)
Grease was present on spring and drive gear cable connector (See Photos)
Oil was present on extension plate
Extension plate was rusted
Inside diameter of push rod had a wear spot due to metal to metal contact with the mounting pin. The bushing had been displaced and was shifted enough to allow metal to metal contact
Bushings measured out of round
Bushings had a score mark around the entire outer circumference
Film of oil was present inside the connector
The pin "GO" gage would not fit all the way home on the pin. It looked like there was a pin finish difference (which affected the diameter) in the final 3-4 mm of engagement nearest the pin head.

The car is available for review again. We just need to give the employee notice because she does not always drive the car.

Please let me know when you and Max would like to review the car. I think it is a good example of a "No stop lamps" condition that is NOT caused by the switch.


MVC-0075.JPG MVC-0085.JPG MVC-0095.JPG MVC-0105.JPG

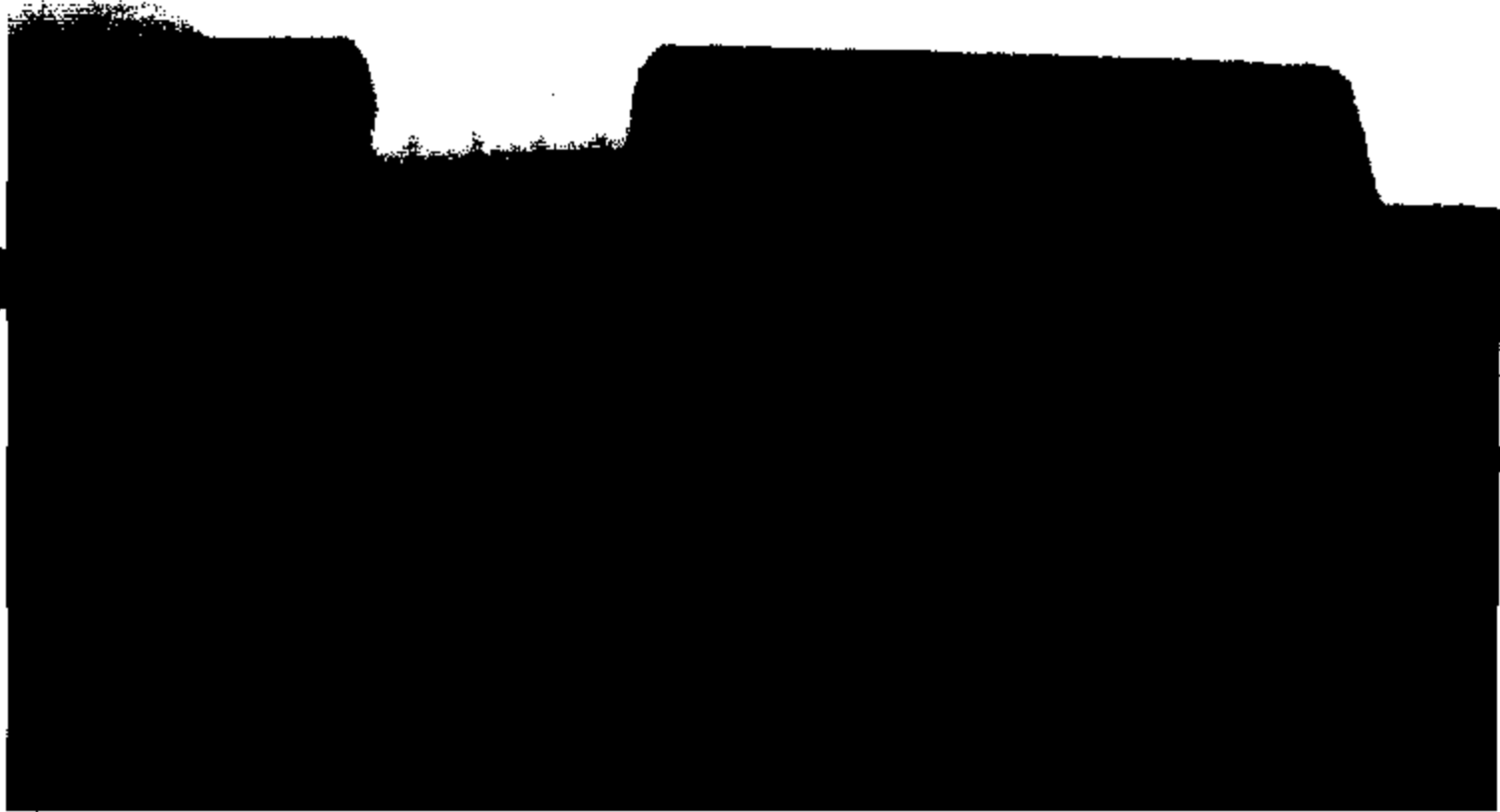
Kevin Lyalk
Electrical Campaign Prevent Specialist- NA Car
Family Vehicles
313-24-85017

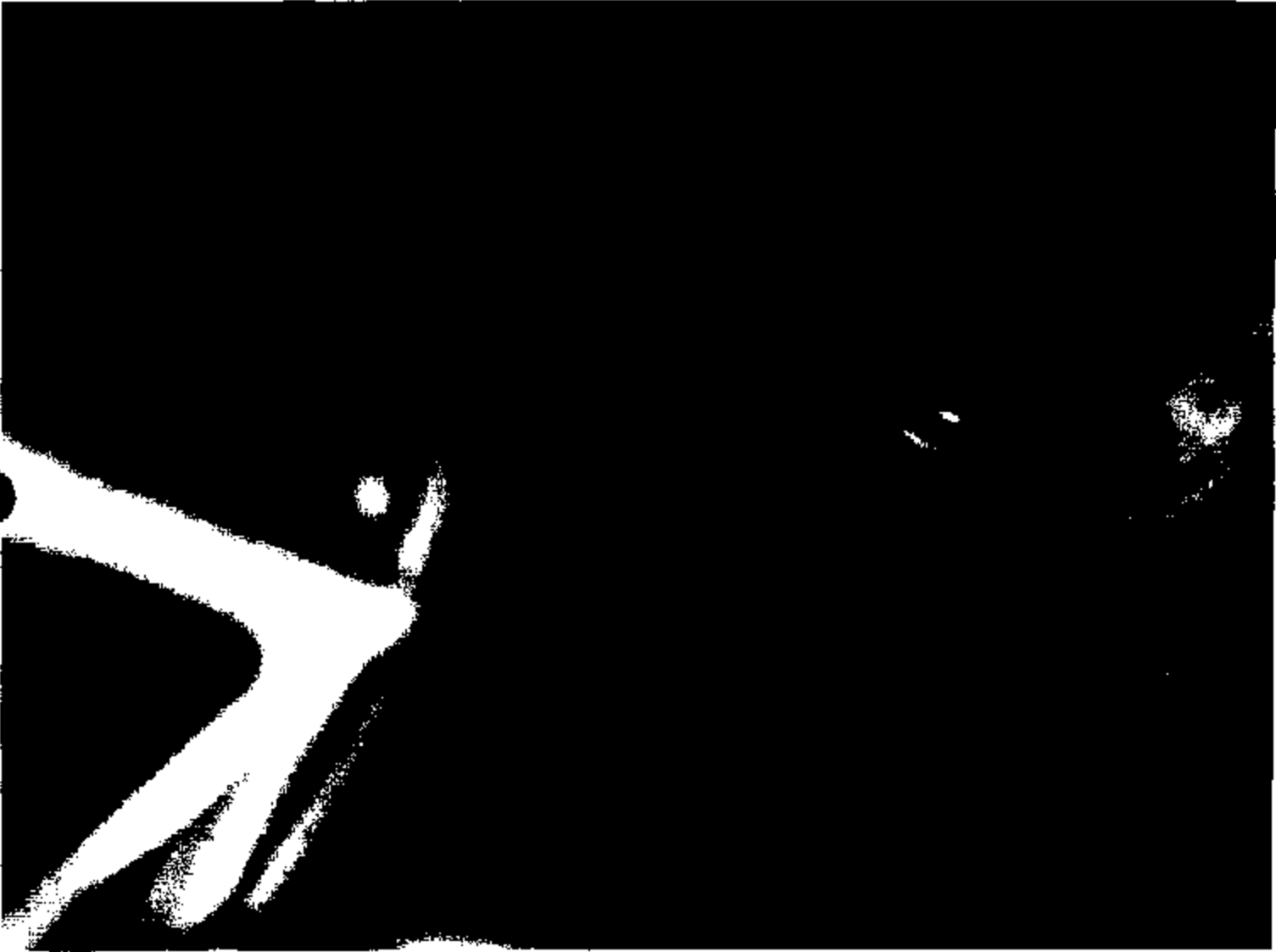


R083-008 8878



RO83-008 8971





From: Kingstrom, Mark (M.D.)
Sent: Tuesday, April 22, 2003 9:16 AM
To: Aghili, Max (M.)
Subject: Taurus Pedal Free Body Diagram

Max,

Please provide me with a force diagram of the Taurus pedal assembly. This is needed for an investigation of the brake pedal assembly/booster/Brake on-off (BOO) switch interface due to high BOO switch warranty that has occurred on several programs. Thanks,

Mark Kingstrom
Brake Design Engineer
Bldg#5 Cube: 3F018
Phone: (313)39-01452

From: Lysik, Kevin (K.M.)
Sent: Wednesday, August 21, 2002 9:41 AM
To: Lysik, Kevin (K.M.); Kornosky, Dale (.); Aghil, Max (M.); Schmidt, Norm (N.G.); Schramek, Joseph (J.E.); Stollsteimer, Dale (D.O.); McCann, Mike (M.J.)
Subject: RE: Taurus Sable Stop Lamp Switch and Pedal ,1/2 day Offsite, 8/27/02

I would like to request that Teleflex and KSR and Pollak are present at this meeting with all drawings required so we can analyze the issue and review the design. Please contact your supplier and get their commitment to support the Tuesday meeting. I will have the FTDC room number by tomorrow and will send out the meeting notice. - Kevin Lysik

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

From: Lysik, Kevin (K.M.)
Sent: Tuesday, August 20, 2002 1:07 PM
To: Kornosky, Dale (.); Aghil, Max (M.); Schmidt, Norm (N.G.); Schramek, Joseph (J.E.); Stollsteimer, Dale (D.O.); McCann, Mike (M.J.)
Cc: Lysik, Kevin (K.M.)
Subject: Taurus Sable Stop Lamp Switch and Pedal ,1/2 day Offsite, 8/27/02

Team:

I am in the process of setting up a 1/2 day offsite at FTDC so we can review the following:

- 1) Complete Free Body Diagram of pedal assy
- 2) Review pedal designed for Littelfuse switch and stop lamp switch activation dimensions and compare this to the pedal designed for the Pollak switch and stop lamp switch activation dimensions.
- 3) Other open issues from the last offsite.

Please make yourselves available and notify your supplier contacts so that they can be in attendance. The meeting can only be productive if each team member participates.

I will send out the formal meeting notice once the room is reserved.

Kevin Lysik

Electrical Campaign Prevent Specialist- NA Car
Family Vehicles
313-24-85017

From: Paluzzi, Felicia (F.F.)
Sent: Thursday, April 11, 2002 4:55 PM
To: Kornosky, Dale (.); Aghill, Max (M.); Heath, David (D.E.); Steiger, Robert (R.A.); Paluzzi, Felicia (F.F.)
Subject: FW: brake lights staying on

Here is another CQIS call in regards to brake lights staying on.

Max,
Do you know where Teleflex stands on their testing with the shouldered booster pin. Also, have you received the new cost?

Regards,

Felicia Paluzzi

Atlanta Assembly Plant - Taurus/Sable P.U.T.
Chassis Engineer
(404) 689-1720
Ford Mob 769-1720
Pgn (734) 295-1046
Fax (404) 646-1273

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

From: Koryha, Andrew (A.D.)
Sent: Wednesday, March 27, 2002 11:11 AM
To: Paluzzi, Felicia (F.F.)
Subject: brake lights staying on

I binned this report a couple of days ago, the dealer called the Hotline last Friday

CSQI003 CQIS Indicator Summary 03/27/02 11:08:44

1 of 361

Rpt#: 2CVFD017 NHL Rpt: 03/22/2002 Odom: 3,242 M
Rvw: Y File: _ Folder: 00002576 2 Images: 0 Print Smy/Disp Detail(P/D): _
Vehicle: 2002 TAURUS,SE COMF,SEDAN 1FAHP56822A153518 Bld: 11/27/2001
Engine: 3.0L EFI M Calb: 2DD14NQA Trans: AX4N Axle: FWD 3.98 A/C: YES
Dealer Id: 01549 MIKE ANDERSON FORD INC Ph#: (615) 597-2300
State: Tennessee City: Smithville Orig/Caller: PAUL YOUNG
Symptom: 2 01 2 39 ELECT.,LIGHTING SYS,EXT. LIGHTING,EXTERIOR CARGO
Addl Sym: BRAKE LAMP OPERATION St: CCRG/EPRC: _ Rvw: Dt
Fix: Caus. Comp: - Condition Code:

Hotliner: NEDMOND1 Phone: 313 317-7045 Regn Cd: 23 Memphis - 23

Engineering: Phone: TAR:

Dir Contact: Phone: Title Cds: SD

REPAIR PARTS DIRECTOR STATES THE CUSTOMER STATES THE BRAKE LAMPS ARE COMING ON INTERMITTENTLY WHEN NO ONE IS IN THE VEHICLE. TECH WORKING ON VEHICLE CANNOT VERIFY CONCERN, PD CALLING FOR KNOWN CONCERNS.

RECOMM ISM 01-10-004 BRAKE POSITION SWITCH CONNECTOR PIGTAIL AVAILABLE REFERRED TO ISM ABOVE, ADV PD OF BRAKE POSITION SWITCH WITH PIGTAIL, ADV TO CHECK OPERATION OF BRAKE PEDAL POSITION SWITCH.

CSQI048 CQIS Detail Report (Page Nine) 03/27/02 11:08:59

CQIS Report Number: 2CVFD017 Program Type: NHL Orig Rpt #:

Go To Page: _ Print (P/D/W): _

----- STANDARD/OPTIONAL EQUIPMENT -----

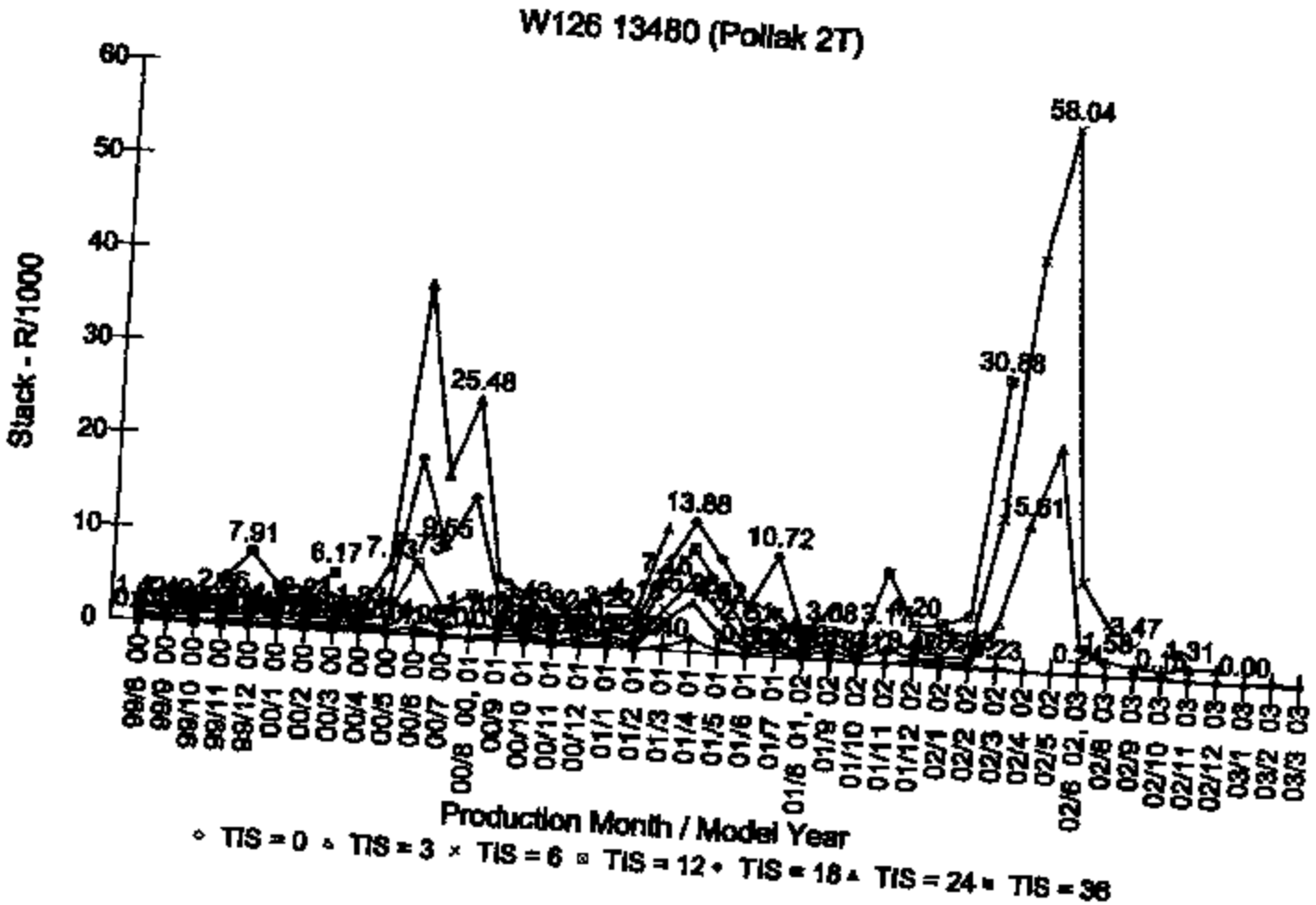
Family Code: _____ Feature:

Fam Fea Feature
Cd Cd Description

Fam Fea Feature
Cd Cd Description

AAG AB ATLANTA PLANT BUILD BSB AG ELECTROCHROMIC MIRROR W/COMPAS
ABS AB SIDE IMPACT PACK BSD CF DRIVER POWER/HEATED -UNDERLIT
AC C ATC AIR CONDITIONER BSF CF PASS POWER/HEATED -UNDERLIT -
BBH AB FRONT THROW IN CARPET FLR MATS BWC AC REAR SEAT FOLD DOWN-SPLIT
BBH AC FRT THROW IN LOGO #1 FLOOR MTS BYP AC POWER 6-WAY DRIVER SEAT ADJUST
BBI AB REAR THROW IN CARPET FLR MATS BYQ AC POWER 6-WAY PASS SEAT ADJUST
BBI AC REAR THROW IN LOGO FLOOR MATS CBF AB DOOR ENTRY REMOTE CNTR UNIT
BB7 AC ADJUSTBLE ACCL/BRK FOOT PEDALS CBG AB KEYLESS ENTRY SYSTEM
BCA AG SUNVISOR,DUAL-DRV ILLUMINATED D2X TK 6.0X16" 5 SPK MACH ALUM WHEELS
BCB AG SUNVISOR,DUAL-PASS ILLUM D3J SZ P215/80R-16 BSW ALL SEASON
BPF AB SINGLE WING REAR SPOILER EGA CC 3.08 FINAL DRIVE RATIO
BPF AE REAR SPOILER-STANCHION EGJ AB NON-LIMITED SLIP REAR AXLE
F1 Help F2 Next Page F3 Exit F4 Prev Page F7 Bkwd F8 Pwd F12 Return
10058-MORE DATA AVAILABLE. PLEASE PRESS F8 TO SCROLL DOWN. FIMR00

Andrew D. Konyha
Taurus/Sable Home Office Product Concern Engineer
PVT and Field Support, VS&P
Diagnostic Service Center Building 2 Cube 566
1800 Fairlane Drive Allen Park, MI 48101
Phone (313) 594-9941 Fax (313) 337-8337
akonyha@ford.com



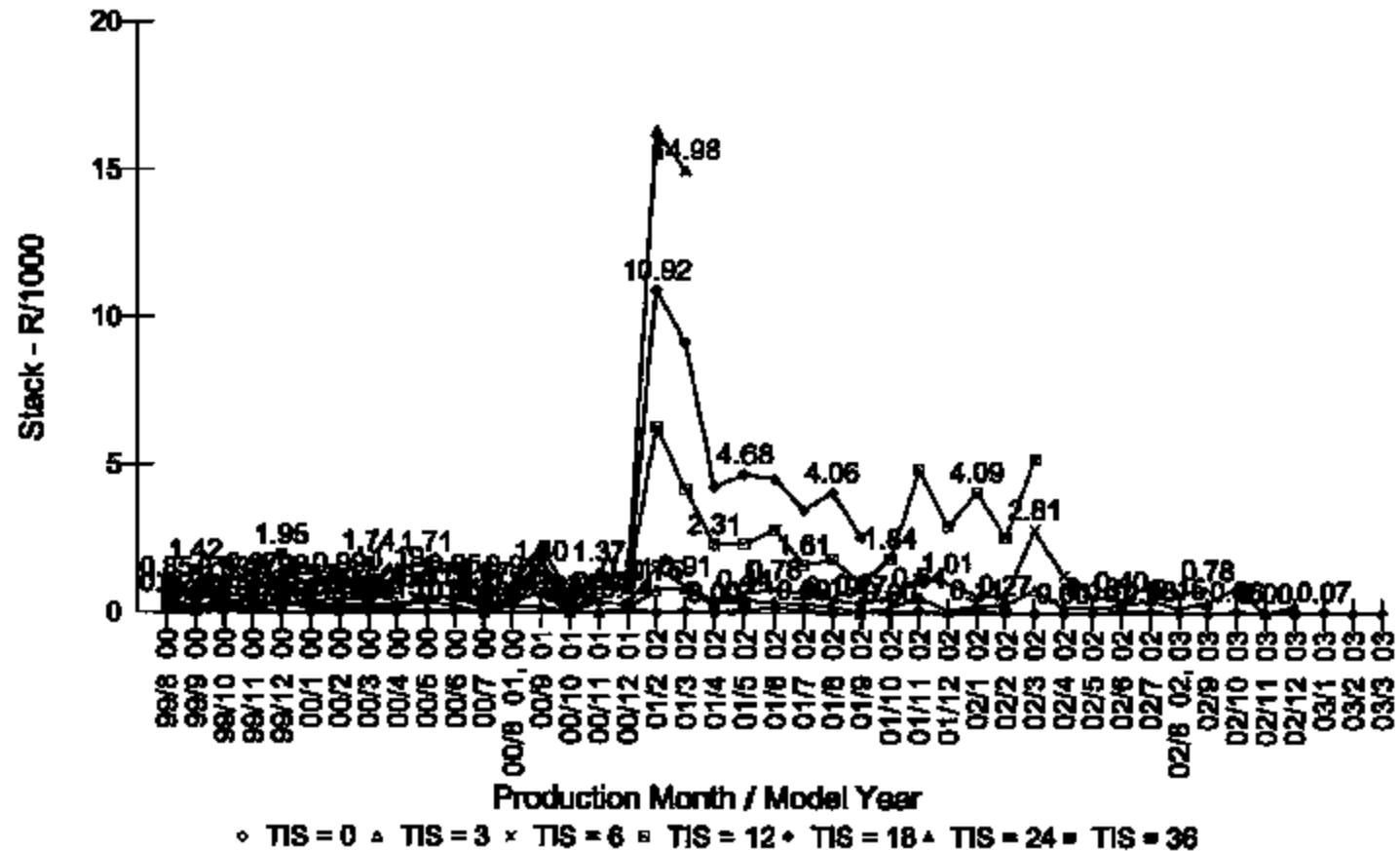
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Data Pull: 12Jun03

1874 680-680

1000-000-4402

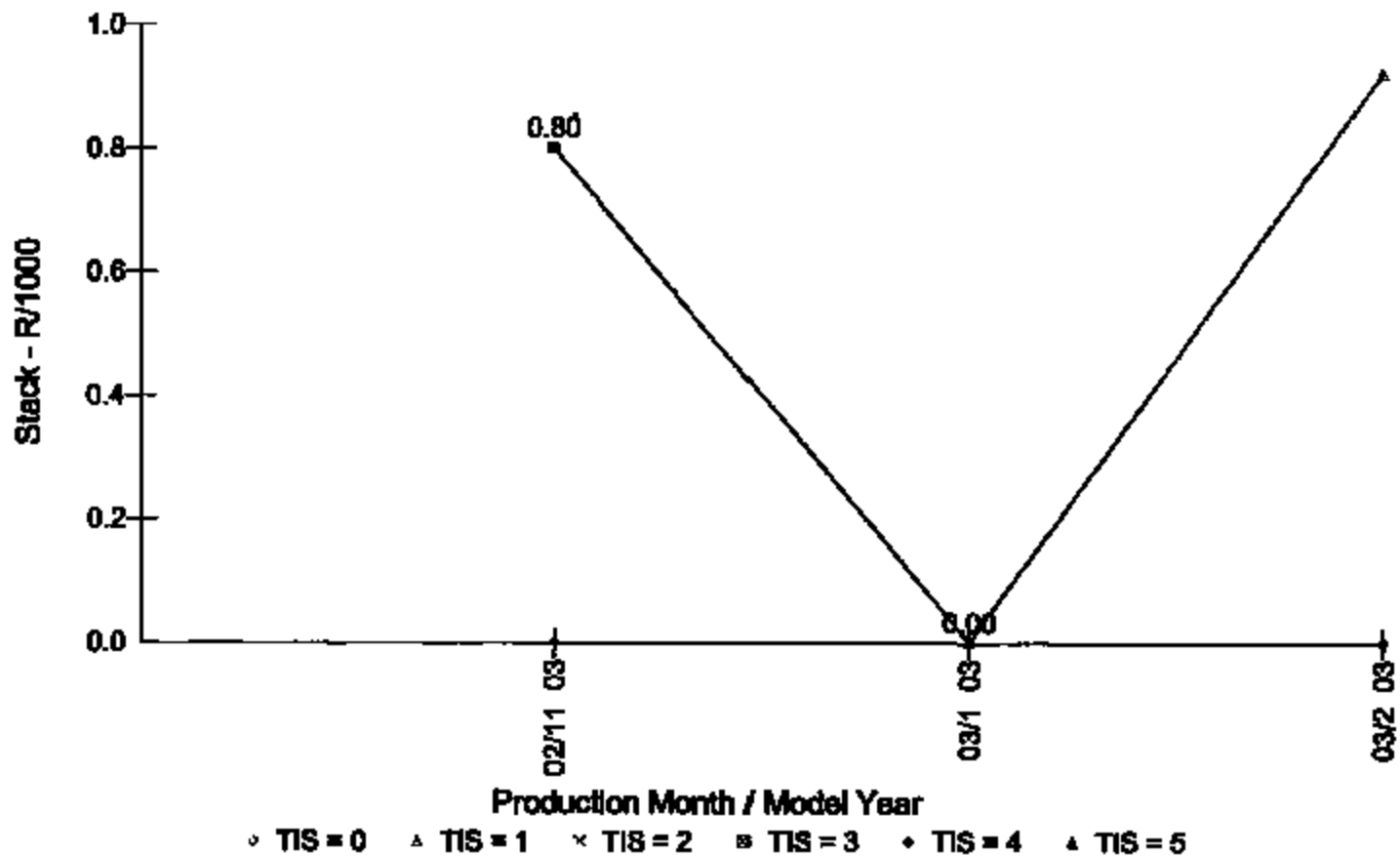
U152 13480 (Pollak 2T)



TIS Reported = 0,3,6,12,18,24,36

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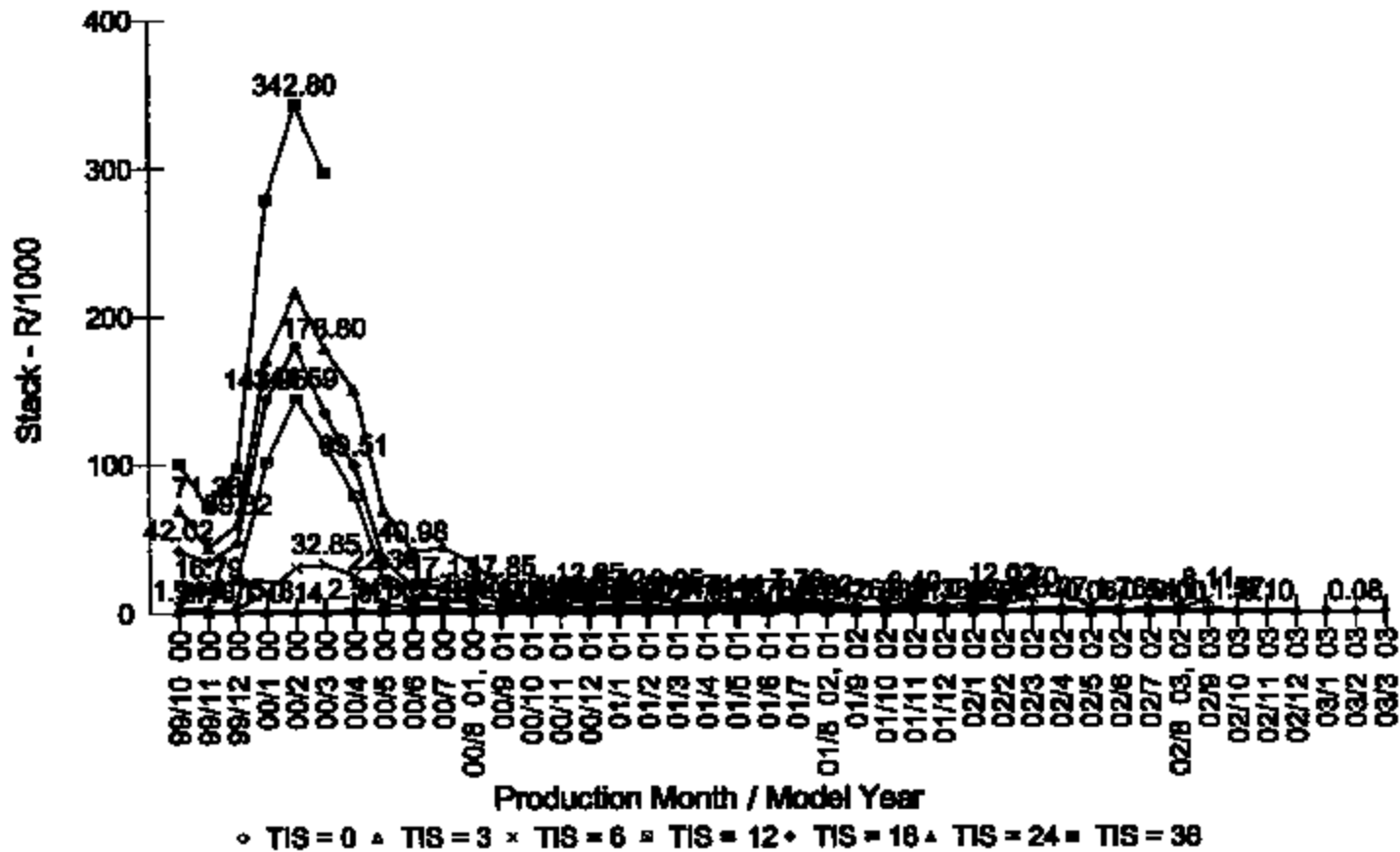
U231 13480



TIS Reported = 0,1,2,3,4,5

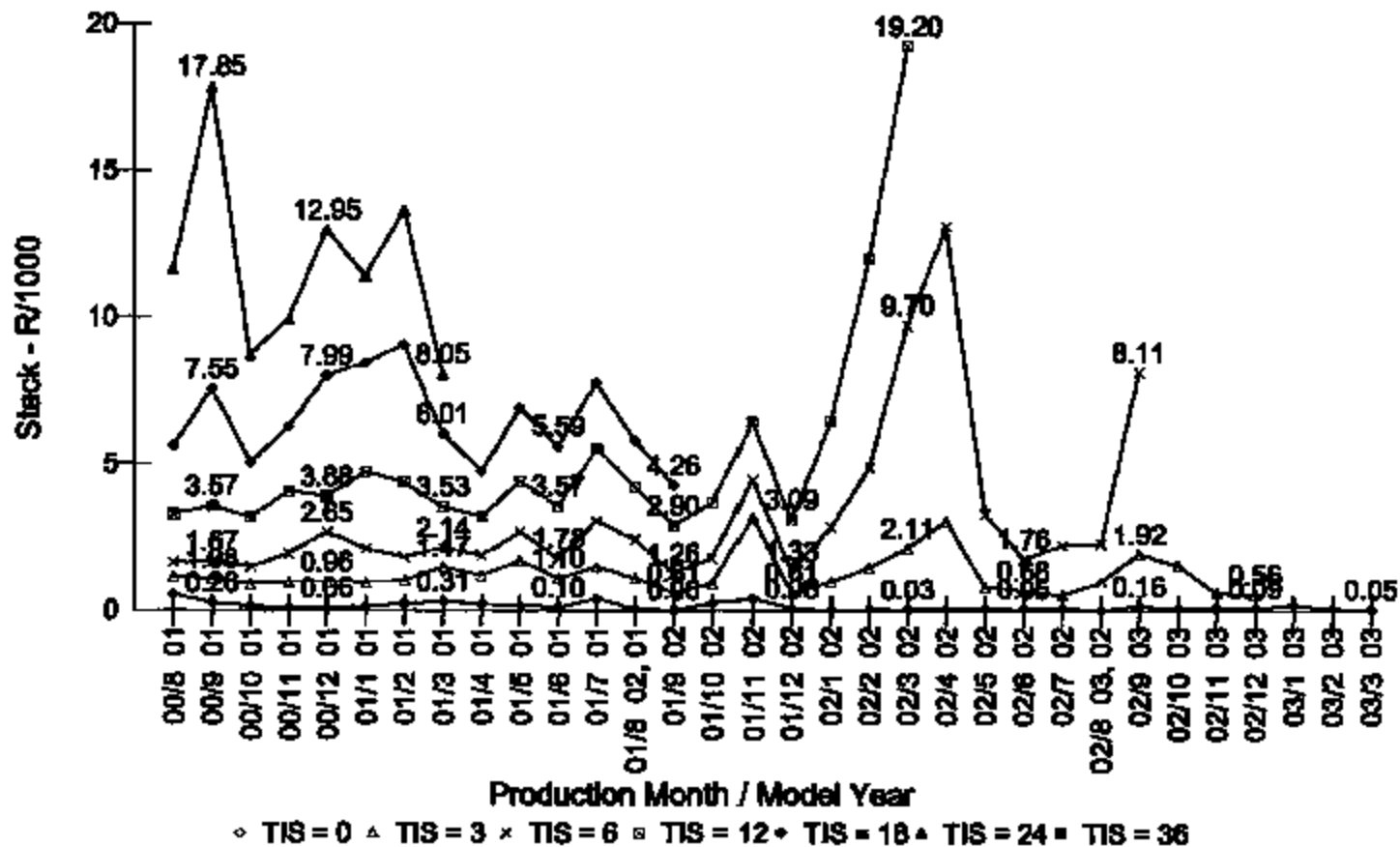
Data Pull: 12Jun03

D186 13480 (Pollak 2T)



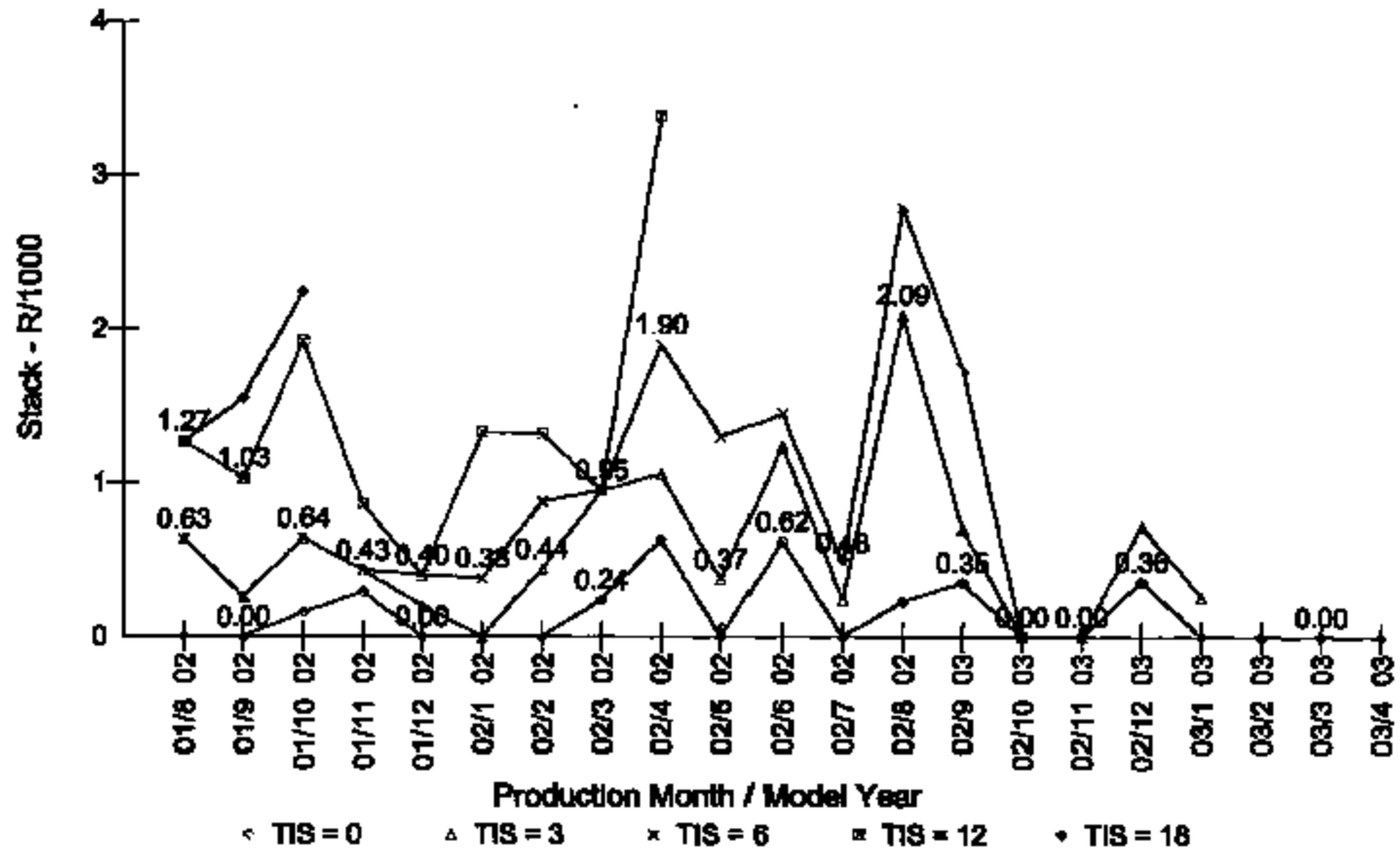
TIS Reported = 0,3,6,12,16,24,36

D186 13480 (Pollak 2T)



TIS Reported = 0,3,6,12,18,24,36

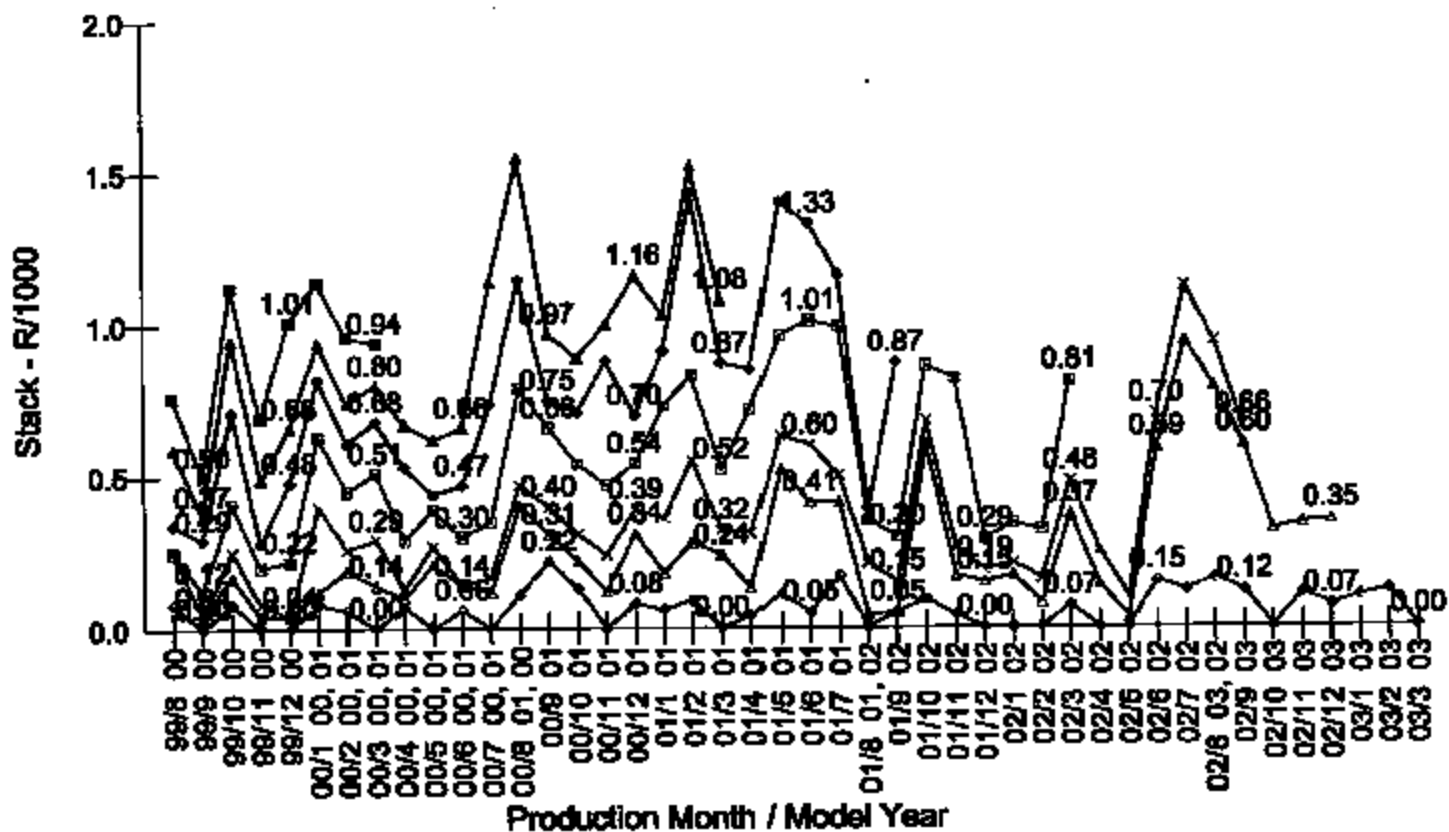
U/P207 13480 (Pollak 5T)



TIS Reported = 0,3,6,12,18

Data Pull: 12Jun03

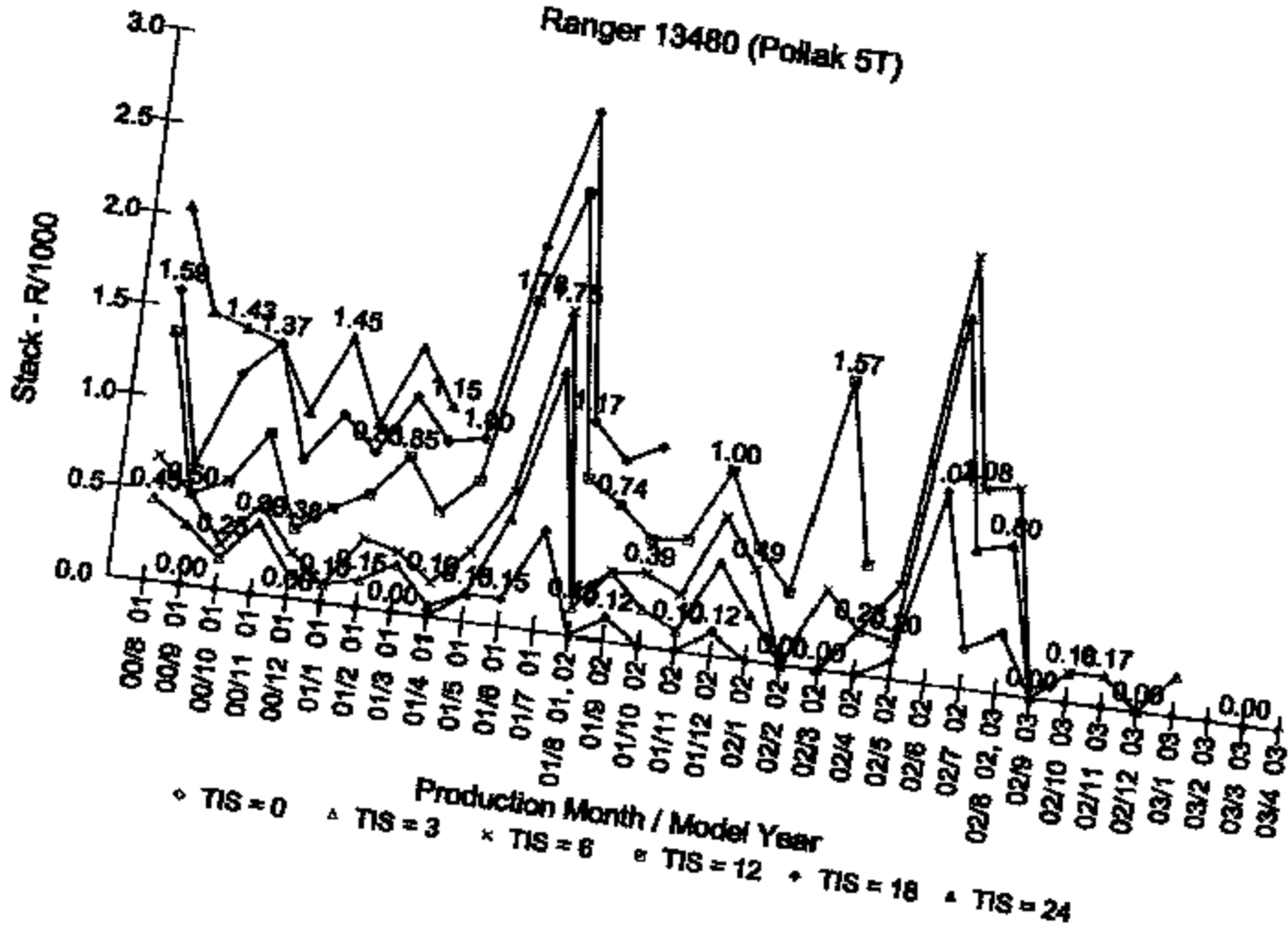
FSeries 13480 (Pollak 5T)



◊ TIS = 0 ▲ TIS = 3 × TIS = 6 ◻ TIS = 12 ◆ TIS = 18 ▲ TIS = 24 ■ TIS = 36

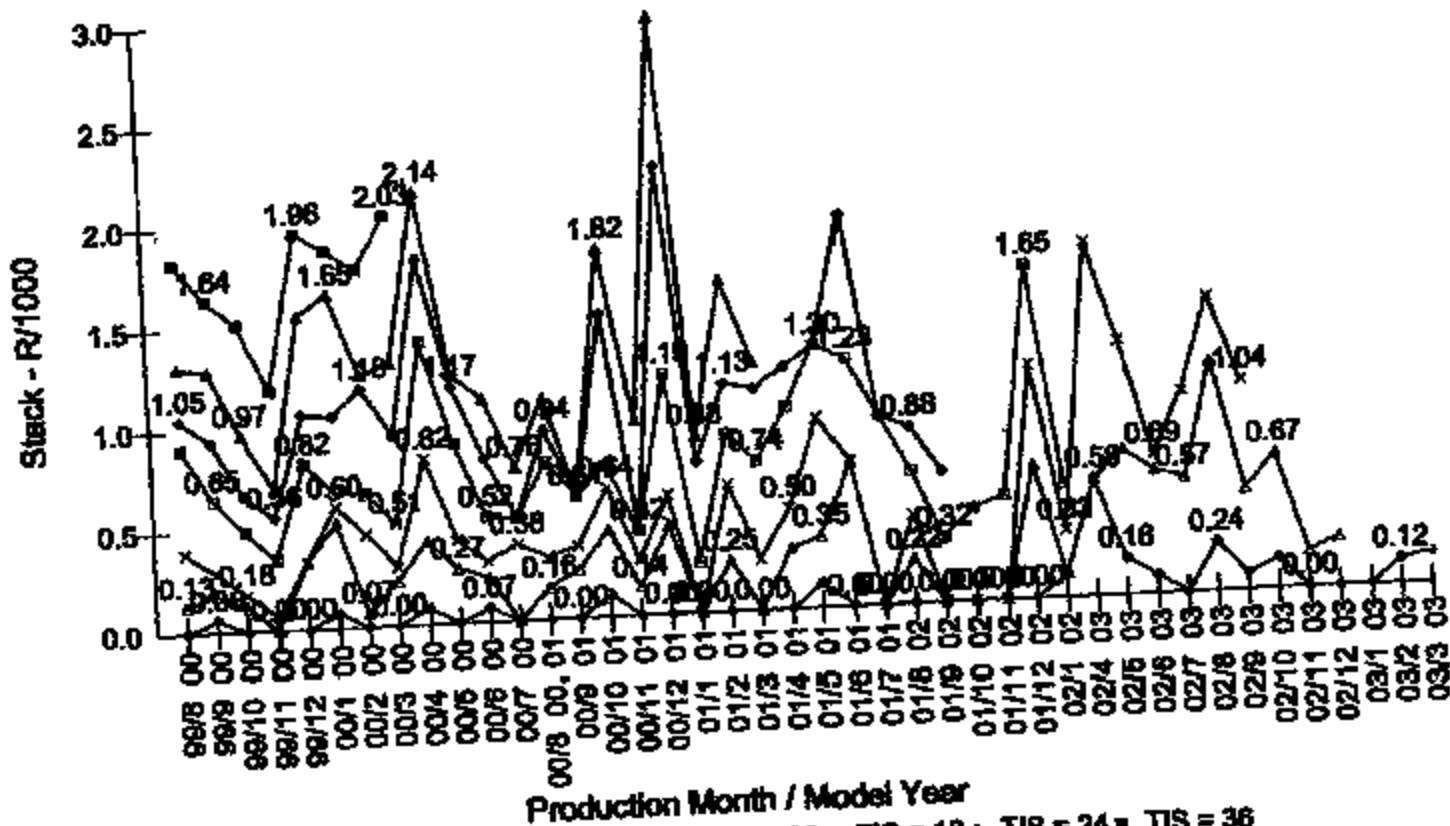
TIS Reported = 0,3,6,12,18,24,36

Ranger 13480 (Pollak 5T)



TIS Reported = 0,3,6,12,18,24

U222/228 13480 (Pollak 6T)



TIS Reported = 0,3,6,12,18,24,36

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1003-005 4475

			OSMY Info	OSMY Info	OSMY Info	OSMY Info	OSMY Info		
MY	Brake On Off Switch PM	BOD Hammer	ABS Controller/ Teeslot/ Oage	Relay/switch Cruise Cut Desc Ser Type	Becket & Rod	Flood Pedal	Adj Pedal	Design History (based on prints and CR's)	Actions Taken/Under Review

RC00-088 4174

MY	03MY Info	03MY Info	03MY Info	03MY Info	03MY Info	03MY Info	03MY Info	03MY Info	Design History (based on prints and CR's)	Actions Taken/Under Review
	Brake On Off Switch P/N	WOC Harness	EDS Connector/Terminal/Size	Resistor/Cable Cat Desc/Size Type	Booster & Rod	Fixed Pedal	Adj Pedal			
1999-01	Poltek XF2T-13480-AA 2 terminal to constant -fine silver for 17mA initial make 0.708 to 0.722	APL 14x005	x23-14x084-ep 97bg-14474-akh 10awg AZ (AZ=thinwall XLPE)	Poltek MUC Mid Pressure	(New to 03MY) Tolltec x22-2b198-be x22-2b196-ca 122-2b195-ca NOTE: no radius on Tolltec booster rod however a radius on TRW's	KSR y22-2450-ab LDM bushing c90a-2a309-a	Tolltec 122-2450-bb, 222-2450-ab LDM bushing c90a-2a309-a	3/97 Poltek Tooling Noted on 4/97 Poltek connector relocation 7/97 Poltek Modification in housing for plunger stop 8/97 Poltek Connector profile revision	2002YCY Wireframe study on pedal variation (RRR) showed all pedal out of spec. 2202CY Low end of gap make changed to 0.719 (field) and 0.719 (production) from 0.708 (CRF?) 2002CY Tightened make and break range to 0.711 to 0.723. 2002CY PENDING Radius change on W126 due to U102 final field problem. V229 switch steady has radius change.	
2002	See above	See above	See above	See above	TRW 122-2b195-ad					
2003	3F2T-13480-AA Make range tightened for service kit 0.713-0.722 (Nov02)	See above	See above	See above	TRW 122-2b195-ad	Y22-2450-ab 222-2450-ab		1102 Poltek Field kit make range tightened due to 'light on'; See RRcost study. 1A03 Poltek Tolerance added to correct reference dimension (XF2T).	2203CY Tighten make and break range of switch to 0.711 to 0.720 for production and field kit issued (1.5k used to date).	
2004	3F2T-13480-CA Production make range shifted to 0.711-0.720. Supersedes field kit (AA) (Ret Mar 03, Prod J1) 3F2T-13480-CB radius change & pin change (0 testing for v229 due to post work)	Delphi 14x006	To be confirmed by Jack Williams (Delphi)	Wethode 4721-9c725-ee	New on all TRW (Adj) 322-2b195-ag (VD) 322-2b195-ae (Fb) 322-2b195-ai 322-ba, be, bg, ee -Radius now on all rods	New KSR(Y) y22-2450-ab 222-2450-ab 222-2450-cg LDM bushing c90a-2a309-a	New Tolltec y22-2450-ab 222-2450-ab 222-2450-aj 222-2450-ak VD BCD7 LDM bushing c90a-2a309-a		2003CY Checks and ESEE retests system SC's and controls...see separate matrix for minutes.	

RC93-000 4475

8247 1/14

Vehicle	Line/Qty/Under Chk Qty Subtype P/N	DOC Revision	ECR Comment/ Remarks Date	Priority								Assembling Plant/Order Number
BN	624-12185-02	JPL 1/0/00										
FWC4	624-12185-02	JPL 1/0/00										
FWC4	Part: 624-12185-02											
FWC4	Part: 624-12185-02											
FWC4	Part: 624-12185-02											

ROD-008 4477

WT Impedance Std	Vehicle	Line/line Breaker On Off Switch Type	BOC Hardware	EOS Connector/ Terminal Type	Platform Control Cable Type Type	Basic Switch Type	Fixed Point	Adj Point	Resistor & Watt	PSM Models	History Collected	Actions Taken/Under Review
History in OSBY	BN	Sub-13482-2a	APL 14402		Fixed Mkt Plunger	Methods	POB/Control Type 1-3490-01 2x13-2623-01-01	Terminal cable Type 7-6202-01 100-01	Resistor 1x13-2623-01 2x13-2623-01	Version	OSBY J1: New high low terminal (replaced)	
History in OSBY	PN148	Sub-13482-2a	APL 14402		Fixed Mkt Plunger	Methods	POB/Control Type 1-3490-01 2x13-2623-01-01	Terminal cable Type 7-6202-01 100-01	Resistor 1x13-2623-01 2x13-2623-01	Version	OSBY J1: New high low terminal (replaced) OSBY Adjustable pedal is standard equipment	
OSBY	PN148	Fixed PN13-1380									<p>OSBY SYSTEM INFO</p> <p>OSBY terminal is only one plugable with changes in hardware.</p> <p>OSBY terminal is used with 2 cabs for ABS include mounting (part, 12 wire & 14 wire). - Enclosed through the terminal.</p> <p>Must be certified with Ford Motor that ABS system complete. FORD/PL V W126 (2 or 3) low serial reach.</p> <p>Low serial units (replaced) for terminals will likely operate at 28.000k volt/amp.</p>	
OSBY	PN148	Same as above									<p>OSBY may be either 6.0L or 6.8L in being completed.</p>	
	BN	-13482										
	OSBY	-13482										

1000-000 4478

Part Library Location Name	Chgo Code	Part Grade	Part Name	Part Grade	Part M	Part Description
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GMV Emblem Badging

Louisville	AP08A	31802	1L54	BA225	BB	603284	ACTUATOR ASSY - SPD CONTR
Louisville	AP08A	31803	1L5F	DC734	AA	580258	SERVO & BRACKET ASY-SPEED
Louisville	AP08A	60804	F67B	13480	AB	580268	SW ASY-5TP LP
Louisville	AP08A	60802	F67A	2480	BE	635788	BRK & CL PDL & BRKT ASY
Louisville	AP08A	60802	F67A	2480	AA	615904	PDL & BRKT ASY-BRK
Louisville	AP08A	60701	2L24	28688	BA	143748	BST & MSTR CYL ASY-BRK HYD
Louisville	AP08A	60701	2L24	28688	CA	158287	BST & MSTR CYL ASY-BRK HYD

GMV Emblem U18E

St. Louis	AP14A	31802	1L24	BA225	AB	603284	ACTU ASSY - SPD CONTR
St. Louis	AP14A	31802	2L24	BA225	BA	188267	ACTU ASSY - SPD CONTR
St. Louis	AP14A	60801	C80A	24300	A	228988	BSHG BRK MSTR CYL PWD
St. Louis	AP14A	60802	1L24	2480	AG	980800	PDL & BRKT ASY-BRK
St. Louis	AP14A	60804	YF11	13480	AA	683888	SW ASY-5TP LP
St. Louis	AP14A	60701	1L24	28688	BE	640188	BST & MSTR CYL ASY-BRK HY
St. Louis	AP14A	60802	1L24	6F668	BT	188264	PDL ASSY-ACEL & BRAKE ADJ
St. Louis	AP14A	60802	1L24	6F668	BT	188264	PDL ASSY-ACEL & BRAKE ADJ
St. Louis	AP14A	60802	1L24	6F668	AT	188263	PDL ASSY-ACEL & BRK
St. Louis	AP14A	60802	1L24	6F668	AT	188263	PDL ASSY-ACEL & BRK

GMV Magnalinear

St. Louis	AP14A	31802	1L24	BA225	AB	603284	ACTU ASSY - SPD CONTR
St. Louis	AP14A	31802	2L24	BA225	BA	188267	ACTU ASSY - SPD CONTR
St. Louis	AP14A	31803	1L2F	DC734	BB	108768	SERVO & BRACKET ASY-SPEED
St. Louis	AP14A	60801	C80A	24300	A	228988	BSHG BRK MSTR CYL PWD
St. Louis	AP14A	60802	1L24	2480	AG	980800	PDL & BRKT ASY-BRK
St. Louis	AP14A	60802	1L24	6F668	AT	188263	PDL ASSY-ACEL & BRK
St. Louis	AP14A	60802	1L24	6F668	AT	188263	PDL ASSY-ACEL & BRK
St. Louis	AP14A	60802	1L24	6F668	BT	188264	PDL ASSY-ACEL & BRAKE ADJ
St. Louis	AP14A	60802	1L24	6F668	BT	188264	PDL ASSY-ACEL & BRAKE ADJ
St. Louis	AP14A	60804	YF11	13480	AA	683888	SW ASY-5TP LP
St. Louis	AP14A	60701	1L24	28688	BE	640188	BST & MSTR CYL ASY-BRK HY

GMV Magnet

St. Louis	AP14A	31804	1F11	6F624	AA	600768	SW ASY-5TP CONTR DEACT
St. Louis	AP14A	60802	1L24	2480	AB	600688	PDL & BRKT ASY-BRK
St. Louis	AP14A	60802	1L24	2480	CJ	108268	PDL & BRKT ASY-BRK
St. Louis	AP14A	60802	1L24	2480	DH	100782	PDL & BRKT ASY - BRK
St. Louis	AP14A	60802	1L24	2480	BL	1381408	
St. Louis	AP14A	60802	1L24	6F668	AT	188263	PDL ASSY-ACEL & BRK
St. Louis	AP14A	60802	1L24	6F668	AT	188263	PDL ASSY-ACEL & BRK
St. Louis	AP14A	60802	1L24	6F668	BT	188264	PDL ASSY-ACEL & BRAKE ADJ
St. Louis	AP14A	60802	1L24	6F668	BT	188264	PDL ASSY-ACEL & BRAKE ADJ
St. Louis	AP14A	60802	2L24	6F668	FB	188262	PDL ASSY-ACEL & BRK
St. Louis	AP14A	60804	YF11	13480	AA	683888	SW ASY-5TP LP
St. Louis	AP14A	60701	1L24	28688	BE	640188	BST & MSTR CYL ASY-BRK HY
St. Louis	AP14A	60701	1L24	28688	EE	660187	BST & MSTR CYL ASY-BRK HY
St. Louis	AP14A	60701	2L24	28688	AD	1633228	BST & MSTR CYL ASY-BRK HY

GMV Logo P180

AP21A	FORD ONTARIO TRUCK	60801	1L14	2A032	AA	128988	CYL ASY-PURPLE-GREEN
AP21A	FORD ONTARIO TRUCK	60801	1L14	2A032	BA	128988	CYL ASY BRK MSTR LB PWD
AP21A	FORD ONTARIO TRUCK	60801	C80A	2A380	A	228988	BSHG BRK MSTR CYL PWD
AP21A	FORD ONTARIO TRUCK	60802	2L34	2480	AC	615904	PDL & BRKT ASY-BRK ADJ L
AP21A	FORD ONTARIO TRUCK	60802	2L34	2480	CB	615904	BRK CL PDL & BRKT ASY
AP21A	FORD ONTARIO TRUCK	60804	F67B	13480	AB	680268	SW ASY-5TP LP
AP21A	FORD ONTARIO TRUCK	60701	Y134	2808	AA	732888	MSTR ASY-BRK

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BOM's pulled 4/78

	Part Usage Location Name	Qty Code	Part Pref.	Part Base	Part Suffix	Part Id	Part Description
AP10A	FORD KENTUCKY TRUCK PLANT 2	60903	YC36	2460	BA	1116666	POL & BRKT ASY-BRK
AP10A	FORD KENTUCKY TRUCK PLANT 2	60903	YC36	2460	AA	1120560	POL & BRKT ASY-BRK
AP10A	FORD KENTUCKY TRUCK PLANT 2	60903	YC36	2460	DA	1123008	BRK & CL POL & BRKT ASY
AP10A	FORD KENTUCKY TRUCK PLANT 2	60904	F87B	13480	AB	839028	SW ASY-STP LP
AP10A	FORD KENTUCKY TRUCK PLANT 2	60701	F81A	2006	AD	910548	BSTR ASY-BRK (VAC)
AP10A	FORD KENTUCKY TRUCK PLANT 2	60704	YC34	26630	AA	1054672	BSTR ASY-BRK HYD
AP10A	FORD KENTUCKY TRUCK PLANT 2	60704	YC34	26630	AA	1064672	BSTR ASY-BRK HYD
AP10A	FORD KENTUCKY TRUCK PLANT 2	38903	1L3U	8C734	AA	609004	SERVO & BRKT ASY- SPD CONTR

SEMY Registration

Michigan Truck	AP02A	38903	XL3F	8C734	BB	676302	SERVO & BRKT ASY- SPD CON
Michigan Truck	AP02A	60903	XL1A	8G804	AB	376373	SW ACEL & BRK ADJ CONTR
Michigan Truck	AP02A	60903	XL14	6720	EA	1260339	SHAFT ASY ACCELERATOR PED
Michigan Truck	AP02A	60903	XL34	2460	BA	1260333	POL & BRKT ASY-BRK ANT
Michigan Truck	AP02A	60904	F87B	13480	AB	839028	SW ASY-STP LP
Michigan Truck	AP02A	60701	YL34	2006	AA	730530	BSTR ASY-BRK
Michigan Truck	AP02A	60901	C90A	24308	A	228003	SHHG-BRK MSTR CYL PRD
Michigan Truck	AP02A	60901	XL14	2A032	AA	1260666	CYL ASY-PURPLE-GREEN

SEMY Milestar

Michigan Truck	AP02A	38903	XL3F	8C734	BB	676302	SERVO & BRKT ASY- SPD CON
Michigan Truck	AP02A	100902	XL14	8A825	CE	1062666	RCTU ASY-SPD CONTR
Michigan Truck	AP02A	60904	F87B	13480	AB	839028	SW ASY-STP LP
Michigan Truck	AP02A	60701	YL34	2006	AA	730530	BSTR ASY-BRK
Michigan Truck	AP02A	40804	1L14	8B484	BB	1362234	COMPR & BRKT 1 HOLE
Michigan Truck	AP02A	60901	1L14	2A032	AA	1260666	CYL ASY-PURPLE-GREEN

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Part Name Location Name	Case Code	Part Prefix	Part Base	Part Suffix	Part #	Part Description
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ESMY Windsor

AP20A	FORD OAKVILLE ASSEMBLY	31802	1F2F	80225	AA	1028178	ACTU ASY-SPD CONTR SBL
AP20A	FORD OAKVILLE ASSEMBLY	31802	DF2F	80788	AA	338045	SERVO ASSEMBLY - SPEED CO
AP20A	FORD OAKVILLE ASSEMBLY	40400	1F22	2430	BB	1280340	PEDAL & BRACKET ASY-BRK A
AP20A	FORD OAKVILLE ASSEMBLY	80802	1F22	2430	AH	1280841	POL & BRKT ASY-BRK ANTHL
AP20A	FORD OAKVILLE ASSEMBLY	80802	YF22	2430	AB	1028036	POL & BRKT ASY-BRK ANTHL
AP20A	FORD OAKVILLE ASSEMBLY	80804	DF21	13480	AA	478869	SW ASY-STP LP
AP20A	FORD OAKVILLE ASSEMBLY	80701	DF22	28185	BE	1028116	BSTR & MSTR CYL ASY-BRK
AP20A	FORD OAKVILLE ASSEMBLY	80701	DF22	28185	CE	1028118	BSTR & MSTR CYL ASY BRK
AP20A	FORD OAKVILLE ASSEMBLY	80701	DF22	28185	CA	1188654	BSTR & MSTR CYL ASY BRK

ESMY Toronto

AP08A	Chicago	31804	2F1T	8F824	AA	1028084	SW ASY-SPD CONTR DEACT
AP08A	Chicago	80802	1F12	2480	AA	847718	POL & BRKT ASY-BRK
AP08A	Chicago	80802	1F12	2480	BA	1188388	POL & BRKT ASY-BRK
AP08A	Chicago	80802	1F12	2C484	AC	1240669	ADJ BRAKE & ACCEL ASSY
AP08A	Chicago	80802	1F12	2C484	BC	1240681	ADJ BRK & ACCEL ASY WAGON
AP08A	Chicago	80804	YF1T	13480	BA	884482	SW ASY-STP LP
AP08A	Chicago	80804	2F1T	13480	AA	1014701	BRAKE LIGHT SWITCH PASS
AP08A	Chicago	80701	1F12	2805	AA	1188679	BSTR ASY-BRK
AP08A	Chicago	80701	1F12	2805	BB	1188387	BSTR ASY-BRK

ESMY Baha

AP08A	Chicago	31803	YF1F	8C784	BB	338027	SERVO & BRACKET ASY-SPEED
AP08A	Chicago	31804	2F1T	8F824	AA	1008064	SW ASY-SPD CONTR DEACT
AP08A	Chicago	80802	1F12	2430	AA	847718	POL & BRKT ASY-BRK
AP08A	Chicago	80802	1F12	2430	BA	1188388	POL & BRKT ASY-BRK
AP08A	Chicago	80802	1F12	2C484	AC	1240669	ADJ BRAKE & ACCEL ASSY
AP08A	Chicago	80802	1F12	2C484	BC	1240681	ADJ BRK & ACCEL ASY WAGON
AP08A	Chicago	80804	YF1T	13480	BA	884482	SW ASY-STP LP
AP08A	Chicago	80701	1F12	2806	AA	1188679	BSTR ASY-BRK
AP08A	Chicago	80701	1F12	2806	BB	1188387	BSTR ASY-BRK

ESMY Chicago

	FORD ST THOMAS ASSEMBLY	80802		38088	S400	222174	PN SELF LOCKING (YELLOW)
	FORD ST THOMAS ASSEMBLY	80802	CRDA	2A309	A	228382	BSTR-BRK MSTR CYL PRD
	FORD ST THOMAS ASSEMBLY	80802	CRDA	28128	A	228384	SPCR-BRK MSTR CYL PRD
	FORD ST THOMAS ASSEMBLY	80802	FOAC	28480	AA	228386	SPCR-BRK POL SUPP
	FORD ST THOMAS ASSEMBLY	80802		N800538	S100	878102	NUT-MBK1.25 "UP P/T
	FORD ST THOMAS ASSEMBLY	80802		N800737	S101	1188675	SCREW & WASHER
	FORD ST THOMAS ASSEMBLY	80802	2818	2430	AA	1271288	POL & BRKT ASY-BRK
	FORD ST THOMAS ASSEMBLY	80802	1W13	2430	BL	1374717	POL & BRKT ASY-BRK
	FORD ST THOMAS ASSEMBLY	80802	8W13	3480	AC	1401138	POL & BRKT ASY-BRK
	FORD ST THOMAS ASSEMBLY	80802	8W13	2430	BD	2878226	POL & BRKT ASY-BRK
		80701	1W13	28188	AD	842883	BST & MSTR CYL ASY-BRK
		80701	1W13	28188	BD	1028090	BSTR & MSTR CYL ASY-BRK
		80701	1W73	28186	CD	1028088	BSTR & MSTR CYL ASY BRK
		80701	8W13	28186	AF	3837838	BST & MSTR CYL ASY-BRK
		80701	8W73	28186	BF	3837840	BSTR & MSTR CYL ASY BRK
		80801	FBAC	2C204	AD	228410	SENSOR ASY-FRT BRAKE-ANTI

ESMY EN /Grand Marais

80802		38088	S100			222174	PN SELF LOCKING (YELLOW)
80802	CRDA	2A309	A			228382	BSTR-BRK MSTR CYL PRD
80802	CRDA	28128	A			228384	SPCR-BRK MSTR CYL PRD
80802	FOAC	28480	AA			228386	SPCR-BRK POL SUPP
80802		N800538	S100			878102	NUT-MBK1.25 "UP P/T
80802		N800737	S101			1188675	SCREW & WASHER

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Part Using Location Name	Class Code	Part Price	Part Name	Part Units	Part #	Part Description
	80802	2W13	2880	AA	1271288	PL & BRKT ASY-BRK
	80802	1W13	2880	BL	1374717	PL & BRKT ASY-BRK
	80802	2W13	2880	AC	1481138	PL & BRKT ASY-BRK
	80802	3W13	2880	BC	3878288	PL & BRKT ASY-BRK
	80701	1W13	28186	AD	842883	SET & METR CYL ASY-BRK
	80701	3W33	28186	BA	1420757	SET & METR CYL ASY-BRK
	80701	3W13	28186	AF	3827888	SET & METR CYL ASY-BRK
	80801	FSAC	2C284	AD	228416	SENSOR,ASY-PRY BRK&S-ANTI

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D218:

080802	8F83	8F888	AA	Plt Assy-Axial & Bsk	
080802	8F83	8F888	BB	Plt Assy-Axial & Bsk	
080802	8F83	8F888	CB	Plt Assy-Axial & Bsk	
080802	8F83	8F888	CC	Plt Assy-Axial & Bsk	
080802	ILF83	880802	01	Small Brk Pul & Supt	
080802		W701834	S428	Scr & Wash - M8X28 Hex Head	
080802		W708883	S428	Screen/Wash M8X28 Hz Fl DTD	
080804	3M5T	13480	AB	Sw Assy-Big Lp	
080701	4F83	28186	AAK	Set & Metr Cyl Assy Brk	
080701	8F83	28186	BA	Set & Metr Cyl Assy Brk	
080701	8F83	28186	CA	Set & Metr Cyl Assy Brk	
080802	4F83	2C333	AC	Unit Assy-Brk Anil Lk Test Comp	
080802	4F83	2C333	BC	Unit Assy-Brk Anil Lk Test Comp	
080802	8F83	2C333	CA	Unit Assy-Brk Anil Lk Test Comp	
080802	8F83	2C346	AB	Unit Assy-Brk Anil Lk	
080802	4F83	2C406	AC	Unit Assy-Bk Func Invd Comp	
080802	4F83	2C406	BC	Unit Assy-Bk Func Invd Comp	
080802		W830112	S438	Fast MS HF Pts 1D	
080802		W701834	S438	Screen/Wash M8X28 Hz Pl DTD	

D218

080802	8F83	8F888	AA	Plt Assy-Axial & Bsk	
080802	8F83	8F888	BB	Plt Assy-Axial & Bsk	
080802	8F83	8F888	CC	Plt Assy-Axial & Bsk	
080802	8F83	8F888	CA	Plt Assy-Axial & Bsk	
080802	8F83	8F888	AB	Plt Assy-Axial & Bsk	
080802	8F83	8F888	CB	Plt Assy-Axial & Bsk	
080802	8F83	8F888	CC	Plt Assy-Axial & Bsk	
080802	ILF83	880802	01	Small Brk Pul & Supt	
080802		W701834	S428	Scr & Wash - M8X28 Hex Head	
080802	ILF83	880802	01	Layout - Brake Tubing & Hose	
080804	3M5T	13480	AB	Sw Assy-Big Lp	
080701	4F83	28186	AAK	Set & Metr Cyl Assy Brk	
080701	8F83	28186	AA	Set & Metr Cyl Assy Brk	
080701	8F83	28186	BA	Set & Metr Cyl Assy Brk	
080701	8F83	28186	CA	Set & Metr Cyl Assy Brk	
080701	8F83	28186	DA	Set & Metr Cyl Assy Brk	
080701		280888	8100	Plt Assy-Bk Anil Lk Test Comp	
080800	ILF83	880801	01	Small Anil Lk Brk One Pr	
080800	ILF83	880801	02	Small Anil Lk Brk Two Pr	
080802	4F83	2C333	AC	Unit Assy-Brk Anil Lk Test Comp	
080802	4F83	2C333	BC	Unit Assy-Brk Anil Lk Test Comp	

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Part Using Location Name	Order Code	Part Part#	Part Desc	Part Suffix	Part M	Part Description
	000002	8F88	2C-303	AC		Unit Assy-Bnk Arml Lt Yrd Comp
	000002	8F88	2C-303	AD		Unit Assy-Bnk Arml Lt Yrd Comp
	000002	8F88	2C-303	BC		Unit Assy-Bnk Arml Lt Yrd Comp
	000002	8F88	2C-303	CA		Unit Assy-Bnk Arml Lt Yrd Comp
	000002	8F88	2C-346	AB		Contr & Mod Assy-Bnk Arml Lt
	000002	4F88	2C-406	AC		Unit Assy-M Fenc Int Contr
	000002	4F88	2C-406	BC		Unit Assy-M Fenc Int Contr

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Supplier Name	Supplier Code	Total Usage	Usage Yr1	Unit Mkt Code	Price Quality Code	From Date	To Date	For Alliance Code	Avg Yr C
HI LEX CORP	T013	5,737	0.88	2.88	A1	2/1/2002	2/28/2002		2.3
ALTEC ELECTRONICA CHIHUAHUA SA DE C	EE0A	5,737	0.88	33.33	1	2/1/2002	2/28/2002	V	32.72
JOSEPH POLLAK CORP	P645	5,844	1	1.43	A1	2/1/2002	2/28/2002		1.43
KSR INTERNATIONAL CO	K883	182	0.02	8.08	A1	2/1/2002	2/28/2002		0.2
KSR INTERNATIONAL CO	K883	5,712	0.88	4.88	1	2/1/2002	2/28/2002		4.87
BOSCH BRAKING SYSTEMS CORPORATION	S4U8	5,737	0.88	32.38	A1	2/1/2002	2/28/2002		51.2
BOSCH BRAKING SYSTEMS CORPORATION	S4U8	107	0.82	49.84	A1	2/1/2002	2/25/2002		0.9

HI LEX CORP	T013	2,895	1	3.47	A1	2/1/2002	2/28/2002		3.46
HI LEX CORP	T013	5	0	3.47	B	2/22/2002	2/22/2002		0.01
LDM TECHNOLOGIES INC - POWERTRAIN S	H807	2,895	1	0.02	A1	2/1/2002	2/28/2002		0.02
KSR INTERNATIONAL CO	K883	149	0.08	8.73	1	2/1/2002	2/28/2002		0.46
JOSEPH POLLAK CORP	P645	2,895	1	1.08	A1	2/1/2002	2/28/2002		1.03
BOSCH BRAKING SYSTEMS CORPORATION	S4U8	2,895	1	49.8	A1	2/1/2002	2/28/2002		49.79
TELEFLEX AUTOMOTIVE	T071	214	0.08	60.83	A1	2/1/2002	2/4/2002		4.84
TELEFLEX AUTOMOTIVE	T071	1,828	0.57	60.85	A1	2/5/2002	2/29/2002		34.88
TELEFLEX AUTOMOTIVE	T071	80	0.32	65.8	A1	2/1/2002	2/4/2002		1.63
TELEFLEX AUTOMOTIVE	T071	754	0.28	65.82	A1	2/5/2002	2/29/2002		15.63

HI LEX CORP	T013	2,895	1	3.47	A1	2/1/2002	2/28/2002		3.46
HI LEX CORP	T013	5	0	3.47	B	2/22/2002	2/22/2002		0.01
ALTEC ELECTRONICA CHIHUAHUA SA DE C	EE0A	2,895	1	27.82	A1	2/1/2002	2/28/2002	V	27.82
LDM TECHNOLOGIES INC - POWERTRAIN S	H807	2,895	1	0.02	A1	2/1/2002	2/28/2002		0.02
KSR INTERNATIONAL CO	K883	149	0.08	8.73	1	2/1/2002	2/28/2002		0.46
TELEFLEX AUTOMOTIVE	T071	50	0.02	65.5	A1	2/1/2002	2/4/2002		1.03
TELEFLEX AUTOMOTIVE	T071	754	0.28	65.32	A1	2/5/2002	2/29/2002		15.63
TELEFLEX AUTOMOTIVE	T071	214	0.08	60.83	A1	2/1/2002	2/4/2002		4.84
TELEFLEX AUTOMOTIVE	T071	1,528	0.87	60.93	A1	2/5/2002	2/29/2002		34.88
JOSEPH POLLAK CORP	P645	2,895	1	1.03	A1	2/1/2002	2/28/2002		1.03
BOSCH BRAKING SYSTEMS CORPORATION	S4U8	2,895	1	49.8	A1	2/1/2002	2/28/2002		49.79

METRODE ELECTRONICS MALTA	U98F	4	0	1.07	A1	2/21/2002	2/22/2002		0
KSR INTERNATIONAL CO	K883	12,178	0.71	8.73	1	2/1/2002	2/28/2002		6.2
KSR INTERNATIONAL CO	K883	86	0.01	10.17	1	2/1/2002	2/29/2002		0.08
KSR INTERNATIONAL CO	K883	102	0.01	10.25	1	2/5/2002	2/19/2002		0.08
KSR INTERNATIONAL CO	K883	288	0.02	42.18	1	2/1/2002	2/19/2002		0.71
TELEFLEX AUTOMOTIVE	T071	190	0.01	39.5	A1	2/1/2002	2/4/2002		0.63
TELEFLEX AUTOMOTIVE	T071	1,394	0.08	65.32	A1	2/5/2002	2/29/2002		4.32
TELEFLEX AUTOMOTIVE	T071	278	0.02	66.88	A1	2/1/2002	2/4/2002		0.88
TELEFLEX AUTOMOTIVE	T071	2,669	0.18	66.88	A1	2/5/2002	2/29/2002		6.48
TELEFLEX AUTOMOTIVE	T071	4	0	82.34	A1	2/21/2002	2/22/2002		0.01
JOSEPH POLLAK CORP	P645	17,138	1	1.03	A1	2/1/2002	2/28/2002		1.03
BOSCH BRAKING SYSTEMS CORPORATION	S4U8	10,742	0.95	49.8	A1	2/1/2002	2/28/2002		49.88
BOSCH BRAKING SYSTEMS CORPORATION	S4U8	380	0.02	51.91	A1	2/1/2002	2/18/2002		1.18
CONTINENTAL TEXES INC	T083	4	0	111.32	A1	2/21/2002	2/22/2002		0.08

TORCO USA INC	T497	7,057	0.84	21.46	1	2/1/2002	2/28/2002		18.12
TORCO USA INC	T497	1,307	0.16	18.30	1	2/1/2002	2/28/2002		2.88
LDM TECHNOLOGIES INC - POWERTRAIN S	H807	8,364	1	0.02	A1	2/1/2002	2/28/2002		0.02
KSR INDUSTRIAL CORP	K880	6,194	0.74	4.78	1	2/1/2002	2/28/2002		3.51
KSR INDUSTRIAL CORP	K880	634	0.08	14.04	1	2/1/2002	2/28/2002		0.88
JOSEPH POLLAK CORP	P645	8,364	1	1.43	A1	2/1/2002	2/28/2002		1.43
BOSCH BRAKING SYSTEMS CORPORATION	S4U8	8,364	1	28.95	A1	2/1/2002	2/28/2002		28.66

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Supplier Name	Supplier Code	Total Usage	Usage Yr1	Unit Mkt Cost	Price Quality Code	From Date	To Date	Part Status Code	Qty Yr1
DRESDEN INDUSTRIAL CO	K983	11,853	0.41	6.08	1	2/1/2002	2/28/2002		2.48
DRESDEN INDUSTRIAL CO	K983	7,388	0.28	6.14	1	2/1/2002	2/28/2002		1.58
DRESDEN INDUSTRIAL CO	K983	2,191	0.08	6.05	1	2/1/2002	2/28/2002		0.48
JOSEPH POLLAK CORP	P645	28,081	1	1.43	A1	2/1/2002	2/28/2002		1.43
BOSCH BRAKING SYSTEMS CORPORATION	S4U8	9,148	0.31	29.37	A1	2/1/2002	2/28/2002		9.24
BOSCH BRAKING SYSTEMS CORPORATION	S4U8	14,013	0.48	73.04	A1	2/1/2002	2/28/2002		88.86
BOSCH BRAKING SYSTEMS CORPORATION	S4U8	6,802	0.2	74.01	A1	2/21/2002	2/28/2002		16.03
CRISTEON AUTOMOTIVE SYS - ALTEC SA D	EEDA	7,824	0.34	28.32	11	2/1/2002	2/28/2002	V	6.07

ALTEC ELECTRONICA CHIHUAHUA SA DE C	EEDA	124	1	43.34	1	2/1/2002	2/1/2002	V	43.34
HOSPITAL OF AMERICA INC	L8K1	124	1	2.98	A1	2/1/2002	2/1/2002		2.08
TELEFLEX AUTOMOTIVE	T071	124	1	18.88	A1	2/1/2002	2/1/2002		18.83
TELEFLEX AUTOMOTIVE	T071	85	0.52	26.08	A1	2/1/2002	2/1/2002		18.28
TELEFLEX AUTOMOTIVE	P846	124	1	1.43	A1	2/1/2002	2/1/2002		1.43
JOSEPH POLLAK CORP	P645	124	1	28.98	A1	2/1/2002	2/1/2002		28.98
BOSCH BRAKING SYSTEMS CORPORATION	S4U8	124	1	29.68	A1	2/1/2002	2/1/2002		29.58
ELUM TECHNOLOGIES INC - POWERTRAIN S	H807	124	1	0.02	A1	2/1/2002	2/1/2002		0.02
TORCO USA INC	T407	124	1	21.48	1	2/1/2002	2/1/2002		21.48

ALTEC ELECTRONICA CHIHUAHUA SA DE C	EEDA	88	1	43.34	1	2/1/2002	2/1/2002	V	43.34
TELEFLEX AUTOMOTIVE	T071	38	1	2.94	A1	2/1/2002	2/1/2002	O	2.94
JOSEPH POLLAK CORP	P645	38	1	1.43	A1	2/1/2002	2/1/2002		1.43
BOSCH BRAKING SYSTEMS CORPORATION	S4U8	33	1	29.58	A1	2/1/2002	2/1/2002		29.58
TORCO USA INC	T407	33	1	78.08	1	2/1/2002	2/1/2002		78.08
TORCO USA INC	T407	38	1	21.48	1	2/1/2002	2/1/2002		21.48

800-838-4438

Supplier Name	Supplier Code	Total Usage	Usage YTD	Unit Issue Cost	Price Quality Code	From Date	To Date	For Billing Code	Avg YTD
TELEFLEX AUTOMOTIVE		18,288	0.81	3.72	A1	2/1/2002	2/28/2002		3.97
ALTEC ELECTRONICA CHIQUARRIA SA DE C		18,288	0.81	38.07	A1	2/1/2002	2/28/2002	V	35.41
TELEFLEX AUTOMOTIVE		842	0.04	62.36	1	2/1/2002	2/28/2002		2.78
TELEFLEX AUTOMOTIVE		12,158	0.57	68.38	1	2/1/2002	2/28/2002		32.2
TELEFLEX AUTOMOTIVE		8,178	0.38	8.28	A1	2/1/2002	2/28/2002		3.35
KSR INTERNATIONAL CO		21,279	1	0.45	A1	2/1/2002	2/28/2002		0.56
JOSEPH POLLAK CORP		18,478	0.77	28.88	A1	2/1/2002	2/28/2002		38.08
TORCO USA INC		4,288	0.2	88.11	A1	2/1/2002	2/28/2002		11.71
TORCO USA INC		371	0.02	48.44	A1	2/1/2002	2/18/2002		0.81

METRODE ELECTRONICS MALTA	USNF	12,334	0.88	1.88	A1	2/1/2002	2/28/2002		1.08
KSR INTERNATIONAL CO	K883	8,138	0.88	8.71	A1	2/1/2002	2/28/2002		4.38
KSR INTERNATIONAL CO	283	283	0.02	7.12	1	2/1/2002	2/28/2002		0.15
TELEFLEX AUTOMOTIVE	T871	3,888	0.28	82.88	A1	2/1/2002	2/28/2002		15.48
TELEFLEX AUTOMOTIVE	T871	380	0.08	82.73	A1	2/1/2002	2/28/2002		1.85
TELEFLEX AUTOMOTIVE	P848	883	0.05	1.34	A1	2/1/2002	2/28/2002		0.87
JOSEPH POLLAK CORP	P845	11,788	0.85	1.28	1	2/1/2002	2/28/2002		1.38
JOSEPH POLLAK CORP	P845	883	0.05	20.88	A1	2/1/2002	2/28/2002		18.88
BOSCH BRAKING SYSTEMS CORPORATION	B4LB	888	0.08	21.84	A1	2/1/2002	2/28/2002		1.13

ALTEC ELECTRONICA CHIQUARRIA SA DE C	B88A	12,334	0.88	34.2	A1	2/1/2002	2/28/2002	V	35.88
METRODE ELECTRONICS MALTA	USNF	12,334	0.88	1.88	A1	2/1/2002	2/28/2002		1.08
KSR INTERNATIONAL CO	K883	8,138	0.88	8.71	A1	2/1/2002	2/28/2002		4.38
KSR INTERNATIONAL CO	283	283	0.02	7.12	1	2/1/2002	2/28/2002		0.15
TELEFLEX AUTOMOTIVE	T871	3,888	0.28	82.88	A1	2/1/2002	2/28/2002		15.48
TELEFLEX AUTOMOTIVE	T871	380	0.08	82.73	A1	2/1/2002	2/28/2002		1.85
TELEFLEX AUTOMOTIVE	P848	883	0.05	1.34	A1	2/1/2002	2/28/2002		0.87
JOSEPH POLLAK CORP	P845	11,788	0.85	20.88	A1	2/1/2002	2/28/2002		18.88
BOSCH BRAKING SYSTEMS CORPORATION	B4LB	888	0.08	21.84	A1	2/1/2002	2/28/2002		1.13

	G038	10,772	1	0.08	A1	2/1/2002	2/28/2002		0.08
	H807	10,772	1	0.02	A1	2/1/2002	2/28/2002		0.02
	H807	10,772	1	0.01	A1	2/1/2002	2/28/2002		0.01
	AR2A	10,772	1	0.8	1	2/1/2002	2/28/2002		0.8
	CO45	10,772	1	0.04	1	2/1/2002	2/28/2002		0.04
	B129	10,772	1	0.1	1	2/1/2002	2/28/2002		0.1
	K888	8,888	0.84	5.7	1	2/1/2002	2/28/2002		8.83
	K888	3,818	0.38	17.88	1	2/1/2002	2/28/2002		8.38
	P860	2	0	8.7	A1	2/1/2002	2/28/2002		8
	K888	8	0	21.8	8	2/1/2002	2/1/2002		0.01
	B881	1,388	0.13	44.7	A1	2/1/2002	2/28/2002		0.3
	B881	7,388	0.88	30.81	A1	2/1/2002	2/28/2002		28.28
	B881	2,884	0.18	38.48	A1	2/1/2002	2/28/2002		7.38
	B4LB	2	0	82.88	A1	2/1/2002	2/28/2002		0.01
	B4LB	8	0	88	A1	2/1/2002	2/1/2002		0.88
	T883	17,882	1.82	8.41	A1	2/1/2002	2/28/2002		8.74

	G038	9,437	1	0.08	A1	2/1/2002	2/28/2002		0.08
	H807	9,437	1	0.02	A1	2/1/2002	2/28/2002		0.02
	H807	9,437	1	0.01	A1	2/1/2002	2/28/2002		0.01
	AR2A	9,437	1	0.8	1	2/1/2002	2/28/2002		0.8
	CO45	9,437	1	0.04	1	2/1/2002	2/28/2002		0.04
	B129	9,437	1	0.1	1	2/1/2002	2/28/2002		0.1

Supplier Name	Supplier Code	Trans Usage	Usage YTD	Unit Meas Code	Price Category Code	From Date	To Date	Part Altitude Code	App Yr C
	K880	838	0.83	6.7	1	2/15/2002	2/28/2002		0.39
	K880	8,782	0.83	17.58	1	2/15/2002	2/28/2002		18.34
	K880	1	0	6.7	A1	2/7/2002	2/7/2002		8
	K880	18	0	21.8	B	2/22/2002	2/7/2002		0.83
	K881	5,421	1	44.7	A1	2/15/2002	2/28/2002		44.88
	S418	5	0	28.3	1	2/22/2002	2/8/2002		0.83
	S418	11	0	82.98	A1	2/22/2002	2/7/2002		0.07
	T088	18,842	2	3.41	A1	2/12/2002	2/28/2002		18.81

W000E11407810001	10/14/2002	AP35AE	8/14/2004	CPP5AE	8/28/2004		X	Y	Y
W000E11440733001	1/17/2002	CPP5AE	7/8/2004				X	Y	Y
W000E11440830000	12/10/2002	AP35AE	8/14/2004	CPP5AE	8/28/2004		X	Y	Y
W000E11440928001	1/17/2002	CPP5AE	7/8/2004				X	Y	Y
W000E11380180001	1/17/2002	CPP5AE	8/28/2004				X	N	Y
W000E11400128000	8/10/1998	AP35AE	8/14/2004	CPP5AE	8/28/2004	W701834-8428	X	Y	Y
W000E11440733001	1/17/2002	CPP5AE	7/8/2004				X	N	Y
W000E11440781000	2/28/2002	AP35AE	8/14/2004				X	Y	Y
		AP35AE	8/14/2004	CPP5AE	8/28/2004		U	Y	N
W000E11380880000	10/3/2002	AP35AE	8/14/2004				U	Y	N
W000E11380880000	10/3/2002	S4P5AE	7/12/2004				U	Y	N
W000E11170884104	10/21/2002	AP35AE	8/28/2004	CPP5AE	7/12/2004		U	Y	N
W000E11170884104	10/21/2002	AP35AE	8/28/2004	CPP5AE	7/12/2004		U	Y	N
W000E11488880000	3/11/2002	CPP5AE	7/12/2004				X	Y	Y
W000E11488880000	3/11/2002	CPP5AE	7/12/2004				X	Y	Y
W000E11488880000	3/11/2002	S4P5AE	7/12/2004				X	Y	Y
W000E11170884104	10/21/2002	AP35AE	8/14/2004	CPP5AE	8/28/2004		X	Y	Y
W000E11170884104	10/21/2002	AP35AE	8/14/2004	CPP5AE	8/28/2004		X	Y	Y
		AP35AE	8/14/2004				X	Y	Y
		AP35AE	8/14/2004				X	Y	Y

W000E1088082002	R	8/14/2004	AP35AE	8/14/2004		F812-2A300-AA	X	Y	Y
W000E11440889800	R	12/10/2002	AP35AE	8/14/2004	CPP5AE		X	Y	Y
W000E11440733001	R	1/17/2002	CPP5AE	7/8/2004			X	Y	Y
W000E11407810001	R	10/14/2002	AP35AE	8/14/2004	CPP5AE		X	Y	Y
W000E11440733001	R	1/17/2002	CPP5AE	7/8/2004			X	Y	Y
W000E11440884028	R	12/10/2002	AP35AE	8/14/2004	CPP5AE		X	Y	Y
W000E11440733001	R	1/17/2002	CPP5AE	7/8/2004			X	Y	Y
W000E11380180001	R	1/17/2002	CPP5AE	8/28/2004			X	N	Y
W000E11380180001	R	1/17/2002	CPP5AE	8/28/2004			X	N	Y
W000E11380180001	R	1/17/2002	CPP5AE	8/28/2004			X	N	Y
W000E11440781000	R	2/28/2002	AP35AE	8/14/2004			X	Y	Y
		AP35AE	8/14/2004	CPP5AE	8/28/2004		U	Y	N
W000E11380880000	R	10/3/2002	AP35AE	8/14/2004			U	Y	N
W000E11380880000	R	10/3/2002	AP35AE	8/14/2004			U	Y	N
W000E11380880000	R	10/3/2002	S4P5AE	7/12/2004			U	Y	N
W000E11380880000	R	10/3/2002	S4P5AE	7/12/2004			U	Y	N
W000E10880820000	R	12/21/2004	AP35AE	8/14/2004			X	Y	Y
W000E11380180001	R	11/7/2002	CPP5AE	8/28/2004			X	N	Y
W000E11380180001	R	11/7/2002	CPP5AE	8/28/2004			X	N	Y
W000E11170884104	R	10/21/2002	AP35AE	8/28/2004	CPP5AE		X	N	Y
W000E11170884104	R	10/21/2002	AP35AE	8/28/2004	CPP5AE		U	Y	N

Supplier Name	Supplier Code	Total Usage	Usage/ Yr	Unit Mktg Cost	Price Quality Code	From Date	To Date	Food Allergy Code	Avg Yr C
W000E11170084104	R	10/21/2002	AP35AE	6/28/2004	CPP5AE		U	Y	N
W000E11400800000	R	3/11/2003	CPP5AE	7/4/2004			X	Y	Y
W000E11400800000	R	3/11/2003	CPP5AE	7/4/2004			X	Y	Y
W000E11400800000	R	3/11/2003	CPP5AE	7/4/2004			X	Y	Y
W000E11400800000	R	3/11/2003	S4P5AE	7/13/2004			X	Y	Y
W000E11170084104	R	10/21/2002	AP35AE	6/14/2004	CPP5AE		X	Y	Y
W000E11170084104	R	10/21/2002	AP35AE	6/14/2004	CPP5AE		X	Y	Y

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GF88-8F888-BA	METAPH	I
GF88-8F888-BB	METAPH	I
GF88-8F888-AB	METAPH	I
GF88-8F888-AC	METAPH	I
IL8F88-888882-01		I
SW70188L-8438		F
SW70888L-8438		I
SM88T-18888-AB	METAPH	I
4F88-88188-AAK		N
GF88-88188-BA	METAPH	I
GF88-88188-CA		I
4F88-8C888-AC	METAPH	I
4F88-8C888-BC	METAPH	I
GF88-8C888-BC	METAPH	I
GF88-8C888-CA	METAPH	I
GF88-8C848-AB	METAPH	I
4F88-8C488-AC	METAPH	I
4F88-8C488-BC	METAPH	I

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-W70112-8438		N	
-W70134-8438		N	

-	F81D-2A308-AA	B2D1	F
-	8F83-8F88-AB	METAPH	
-	8F83-8F88-AC	METAPH	
-	8F83-8F88-BA	METAPH	
-	8F83-8F88-BB	METAPH	
-	8F83-8F88-AB	METAPH	
-	8F83-8F88-AC	METAPH	
-	LEF83-00003-01		
At 8F88 To Dash.	-W70134-8438		F
-	LEF83-00003-01		
-	3MST-13480-AB	METAPH	
-	4F83-2B185-AAK		N
-	8F83-2B185-AA	METAPH	
-	8F83-2B185-BA	METAPH	
-	8F83-2B185-CA		
-	8F83-2B185-DA	METAPH	
AS 2B185 To 8F88.	-38088-8100		N
-	LEF83-00001-01		
-	LEF83-00001-02		
Abs Tca Module W Cvt Trans (2Wd)	4F83-2C388-AC	METAPH	
Abs Tca Module W Cvt Trans (4Wd)	4F83-2C388-BC	METAPH	
Abs Tca Module W Altn Trans (2Wd)	8F83-2C388-AC		
Abs Tca Module W Altn Trans (2Wd)	8F83-2C388-AD		
Abs Tca Module W Cvt Trans (4Wd)	8F83-2C388-BC	METAPH	
Abs Tca Module W Cvt Trans (2Wd)	8F83-2C388-CA	METAPH	
-	8F83-2C348-AB	METAPH	
Abs Tca Inv W Cvt Trans (2Wd)	4F83-2C405-AC	METAPH	
Abs Tca Inv W Cvt Trans (4Wd)	4F83-2C405-BC	METAPH	

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Chassis Requirements for BOO Switch

Please confirm the following components compliance & that they are identified as critical characteristics on the Ford drawings: (Cross Platform)

Component Information

Remarks

Brake Booster Rod (Fixed and Adjustable):

Hole Diameter: 16.23/16.28 mm	
Distance from Flt to Hole tangent: 2.84/2.85mm	
Radius on end of rod (lateral): 25.4 mm +/- 2mm	Windstar booster rod is flat instead of radius and also at a significant angle relative to the pedal pin. Taurus also has the issue of angularity between the booster rod and pedal pin. Ranger may also have this condition, as all but 1 returned BOO set.
Thickness of the rod end: 2.85/2.95 mm	
Chamfer on the mounting hole of the rod: <i>undefined per print</i>	Inconsistent chamfer from side to side on the same rod end from rod to rod. This impacts the effect of booster rod to pin angularity.
Increasing the length of the booster rod flat to 24mm will eliminate issue of BOO switch rotation.	This will prevent switch being mis-installed and then rotated or being partially rotated (by customer foot, e.g.) and staying in this orientation, keeping the stoplamps lit.
Finish on Booster Rod: Zinc Plate, not a phosphate and oil (dull black appearance) type finish, affects friction between switch and rod.	U222 & U228 have what appears to be a phosphate and oil finish.

Booster Rod Bushing:

Wall Thickness: .62/.67 mm with measurements not averaged and controlled with Diameter Concentricity or Runout of D at Maximum Material Condition.	This has been seen as an issue on Windstar and some tool maintenance work on current component has been performed by LDM. New design & tooling req'd?
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Brake Pedal Pin (Fixed and Adjustable):

Diameter: 14.15/14.19 mm (after finish)	
Length from pedal to retaining clip hole tangent:	Some returned BOO switches have witness marks on the plastic housing from the yellow retaining clip. Also, this width will need to be increased by 1 mm if the plastic "redundant" plastic is used.
Perpendicularity of retaining pin hole to pedal pin, any non-perpendicularity reduces the clearance to the BOO switch.	
Perpendicularity of Pin to Pedal Arm: .10 mm Maximum (this reduces the amount of lost motion available by .004")	This affects the lost motion available and may be one of the contributors on the Ranger can't shift out of park issue.
Finish on Pedal Pin: Zinc Plate, welding of pin to pedal arm removes the finish and leaves a powdered oxide, which increases friction between the pin and the switch. Thus, welding of the pin is undesirable.	This condition has been seen on all platforms.
Provide a smooth bearing surface for the BOO switch on the pedal arm side, either via a thin plastic washer or shoulder on the pin (new design for Taurus). This eliminates the friction from either sharp edges on the pedal arm or corrosion of the pedal ar	U222/U228 use a plastic washer, no do applications using the Littlefuse switch. On the Windstar, some of the pedal arms are stamped in the direction which leaves a burr on the switch side.

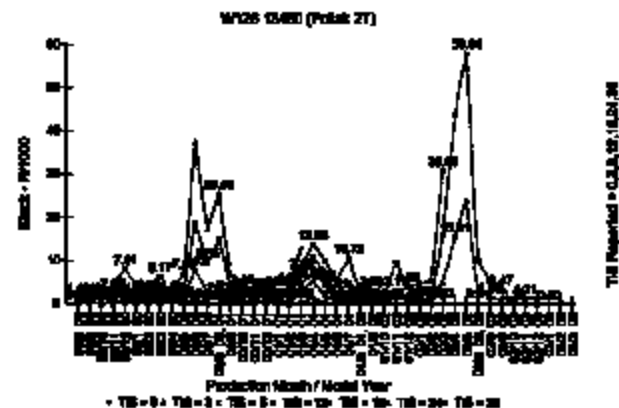
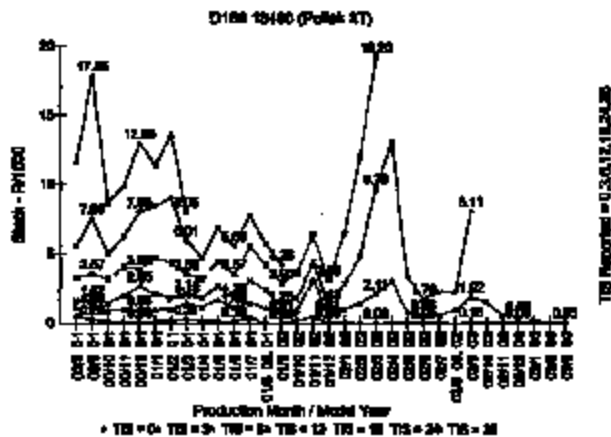
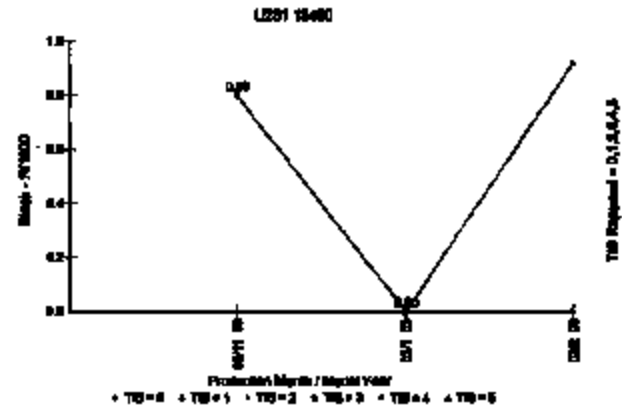
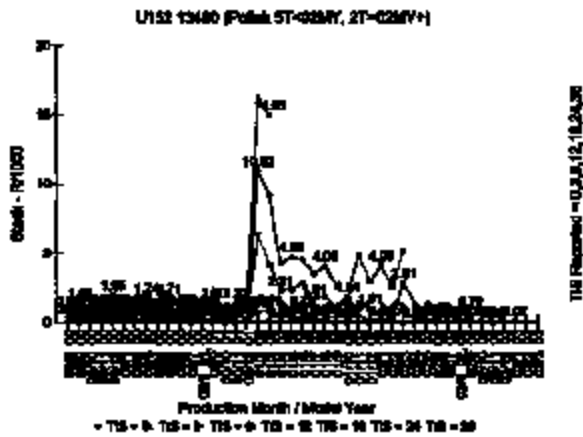
Booster Assembly/Pedal Assembly (Fixed and Adjustable):

Chassis Requirements for EOD Switch

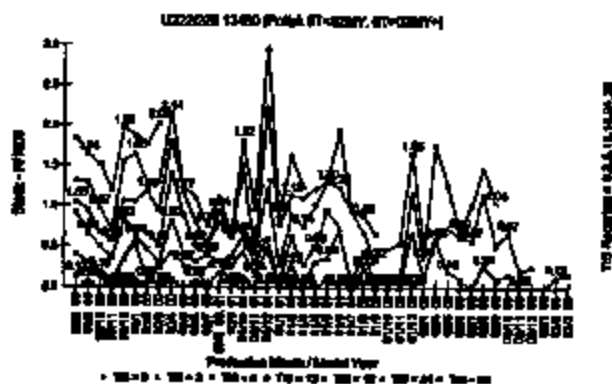
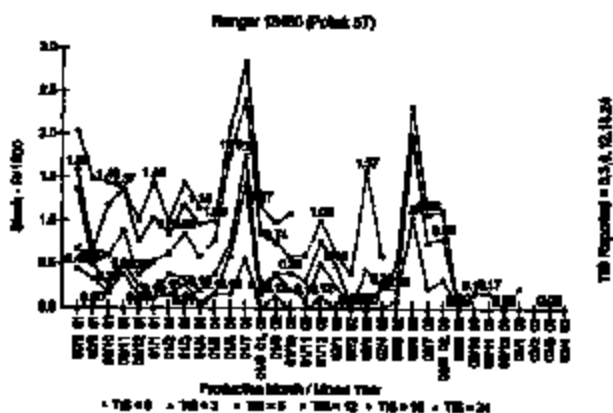
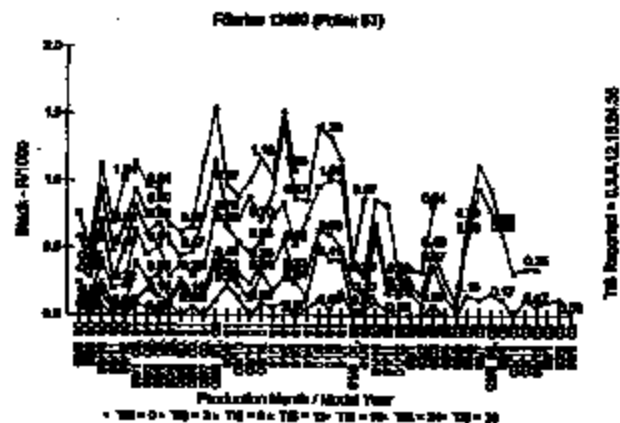
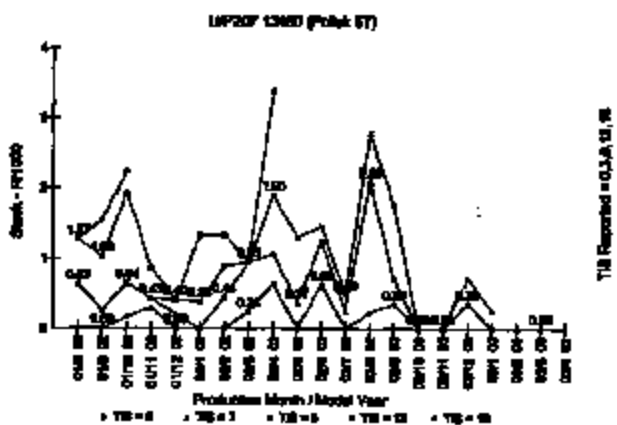
<p>Alignment of Booster Rod on Pedal Pin needs to be a dimensioned & controlled (via Critical Characteristic) feature on both assemblies and be controlled via GD & T back to common datum (the 4 way and two way studs/holes). It is currently only dimensioned</p>	<p>This condition can result in either the condition of stopclamps always on (if the switch is toward the low end of the make zone) or no stopclamps and/or cannot shift out of Park (if the switch is toward the upper end of the make zone).</p>
<p>Assembly must locate the end of the booster rod relative to the fwd tangent of the pedal pin as follows:</p>	

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Pollak 2 terminal BOO Switch



Pollak 5 & 6 terminal BOO Switches



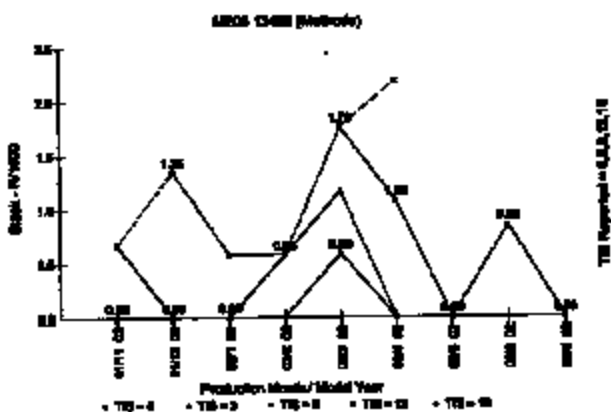
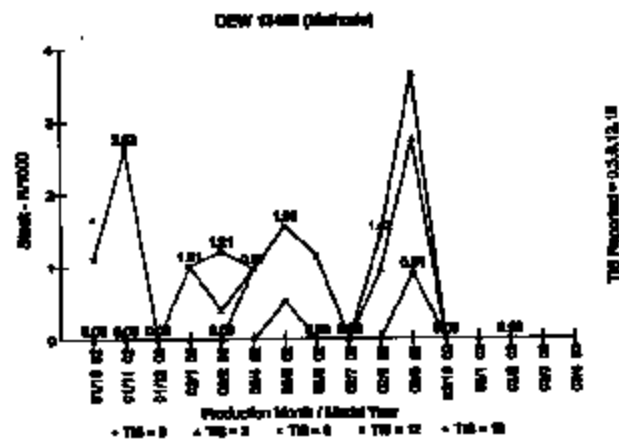
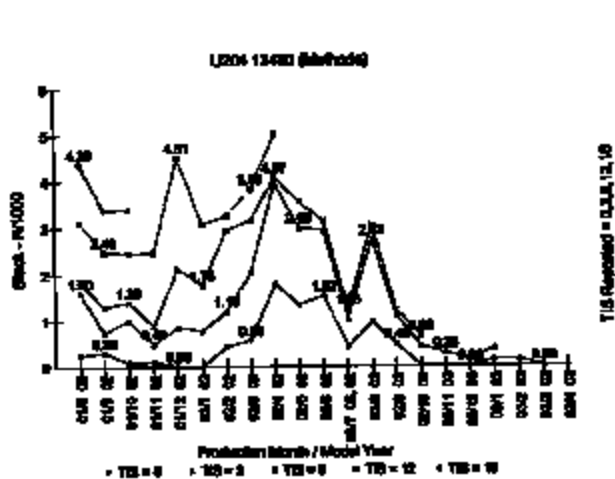
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Method BOO Switch



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Pollak's Top10 BOO Warranty for 02-03MY's

<u>RANK</u>	<u>MOD YEAR</u>	<u>LOGIC</u>	<u>Vehicle Line AWS</u>	<u>COSTS</u>	<u>CPRS</u>	<u>CPUS</u>	<u>R1000S</u>	<u>VEHICLES</u>
1	2002	60-day	A3 - WINDSTAR	105278.17	42.2	1.41	33.43	85234
2	2002	60-day	U2 - EXPLORER	73748.01	48.87	0.52	10.82	281887
3	2002	60-day	DA - TAURUS	67136.38	48.44	0.37	7.45	234548
4	2002	60-day	DM - SABLE	58104.95	42.91	0.9	20.63	77073
5	2002	60-day	F7 - F250HD/350/450/550	12754.67	60.16	0.08	1.41	198780
6	2002	60-day	U3 - MOUNTAINEER	10857.1	51.46	0.59	11.93	37719
7	2002	60-day	F5 - F150/250LD/CR CAB	9631.36	58.02	0.05	0.78	284234
8	2002	60-day	R1 - RANGER NON ELECTRIC	6785.84	56.55	0.09	1.54	106853
9	2002	60-day	S1 - EXPLORER SPORT TRAC	3914.03	59.3	0.1	1.74	44677
10	2002	60-day	U7 - EXPLORER SPORT	1992.38	55.34	0.13	2.36	16506
	2002	60-day	TOTAL	354394.52	46.58	0.51	10.94	1412421
<u>RANK</u>	<u>MOD YEAR</u>	<u>LOGIC</u>	<u>Vehicle Line AWS</u>	<u>COSTS</u>	<u>CPRS</u>	<u>CPUS</u>	<u>R1000S</u>	<u>VEHICLES</u>
1	2003	60-day	DA - TAURUS	14297.53	47.34	0.22	4.61	171442
2	2003	60-day	DM - SABLE	6482.39	44.1	0.49	11.04	29271
3	2003	60-day	A3 - WINDSTAR	5049.91	42.44	0.26	4.95	59236
4	2003	60-day	B3 - EXPEDITION	5556.17	77.17	0.09	1.16	103463
5	2003	60-day	F5 - F150/250LD/CR CAB	2877.62	48.77	0.04	0.88	146196
6	2003	60-day	U2 - EXPLORER	2409.4	49.17	0.04	1	108574
7	2003	60-day	F7 - F250HD/350/450/550	3480.55	75.66	0.06	1.2	133302
8	2003	60-day	B4 - NAVIGATOR	2140.33	101.92	0.13	1.26	22454
9	2003	60-day	U3 - MOUNTAINEER	647.38	43.16	0.07	1.58	15259
10	2003	60-day	S1 - EXPLORER SPORT TRAC	680.06	52.31	0.04	0.9	21420
	2003	60-day	TOTAL	44777.84	51.69	0.12	2.44	882103

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Littelfuse's BOO Warranty for 02-03MY

<u>RANK</u>	<u>MOD YEAR</u>	<u>LOGIC</u>	<u>Vehicle Line AWS</u>	<u>REPAIRS</u>	<u>COSTS</u>	<u>CPRS</u>	<u>CPUS</u>	<u>R1000S</u>	<u>VEHICLES</u>
1	2002	60-day	E1 - ECONOLINE	137	8622.05	62.93	0.1	1.6	116981
2	2002	60-day	FP - GRAND MARQUIS	82	4374.36	53.35	0.12	2.32	35881
3	2002	60-day	FB - CROWN VICTORIA	69	4587.63	66.49	0.15	2.21	34349
4	2002	60-day	ZA - MUSTANG	51	3317.02	65.04	0.06	1	83808
5	2002	60-day	VB - TOWN CAR	32	1874.3	58.57	0.1	1.7	19237
	2002	60-day	TOTAL	371	22775.36	61.39	0.1	1.58	290254
<u>RANK</u>	<u>MOD YEAR</u>	<u>LOGIC</u>	<u>Vehicle Line AWS</u>	<u>REPAIRS</u>	<u>COSTS</u>	<u>CPRS</u>	<u>CPUS</u>	<u>R1000S</u>	<u>VEHICLES</u>
1	2003	60-day	FP - GRAND MARQUIS	147	8633.65	58.73	0.42	5.99	45568
2	2003	60-day	FB - CROWN VICTORIA	109	7273.4	66.73	0.36	5.46	59738
3	2003	60-day	VB - TOWN CAR	56	2834.09	50.61	0.13	2.5	34654
4	2003	60-day	E1 - ECONOLINE	38	3050.24	80.27	0.09	1.13	69982
5	2003	60-day	ZA - MUSTANG	12	685.97	57.16	0.03	0.46	49138
	2003	60-day	TOTAL	362	22477.35	62.09	0.26	3.94	259080

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Methode's BOO Warranty for 02-03MY's

RANK	MOD YEAR	LOGIC	Vehicle Line AWS	REPAIRS	COSTS	CPRS	CPUS	R1000S	VEHICLES
1	2002	60-day	M1 - ESCAPE	431	17607.04	40.85	0.19	4.53	114394
2	2002	60-day	AK - FOCUS	319	17825.19	55.88	0.17	3.18	140937
3	2002	60-day	LQ - LINCOLN LS (DEW 98)	33	1890.63	57.29	0.09	1.64	23878
4	2002	60-day	SB - THUNDERBIRD	18	1486.37	82.58	0.12	1.31	18942
	2002	60-day	TOTAL	801	38809.23	48.45	0.18	3.62	298151
RANK	MOD YEAR	LOGIC	Vehicle Line AWS	REPAIRS	COSTS	CPRS	CPUS	R1000S	VEHICLES
1	2003	60-day	M1 - ESCAPE	49	1998.88	40.75	0.04	0.95	69601
2	2003	60-day	AK - FOCUS	29	1944.45	67.05	0.08	1.01	70005
3	2003	60-day	LQ - LINCOLN LS (DEW 98)	1	57.59	57.59	0.05	0.9	6340
4	2003	60-day	SB - THUNDERBIRD	0	0	0	0	0	3088
	2003	60-day	TOTAL	79	3998.92	50.62	0.05	0.93	149034

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Design Changes to Reduce Pollak's BOO Warranty

Pollak 2 Terminal Switch	Customer /Tech	Field Analysis	Switch Design Changes	System Changes
D188	Lis On & Park Shift Interlock	- Field returns show no problem found - Pedal box lash & wiring issues	- Change to ground spring within switch to counter pedal weight (ETA Post J1 pending testing). - Change the switch actuation range (upwards) to compensate for system interaction. (C11470595; ETA NOV 03)	- Hi flex wire adopted to prevent wiring breakage. - Chassis & Switches developing System. FMEA: cascade SC's to all suppliers
W128/ V229	Lis On	- Field returns show no problem found - W128 rod is major contributor to Lis on	See above	- V229 improved robust pedal box & booster rod changed. - Wiring TBD (New supplier) - Chassis & Switches developing System FMEA: cascade SC's to all suppliers
U152	Lis On & Park Shift Interlock	- IVD vehicles predominantly. - Also O3MY not trending like O2MY.	See above	- Wiring sheathing on O3MY and takeout length reqs revision- identified . - Redundant Speed deact switch changes @ J1 to address adj IVD vehicle problem with Lis on. - Chassis & Switches developing System FMEA: cascade SC's to all suppliers
U231	Lis On	TBD- Problem reported last week (Jun21)	See above	- Hi flex wire under review (3/10 claims). - Chassis & Switches developing System FMEA: cascade SC's to all suppliers
Pollak 556 Terminal Switch	Customer /Tech	Field Analysis	Switch Design Changes	System Changes
U222/228	Lis On & Park Shift Interlock	- Field returns show no problem found	- Added fine silver to low current contacts and deleted a set of contacts for improved closing forces and cost save. (CR 11433160 ETA 04MY J1)	TBD
F series	Lis On	Low R's	- Same as above	- Hi flex under review with systems engineering.
UP207	Lis On & Park Shift Interlock	Low R's	Low R's	- Hi flex wire being considered - Module/system operating below minimum current on select vehicles.
P150	Park Shift Interlock	Low R's	Low R's	- Hi flex wire being considered. - Module/system operating below minimum current on select vehicles.

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Design Changes to Reduce Littelfuse's BOO Warranty

Littelfuse Switch	Customer /Tech	Field Analysis	Switch Design Changes	System Changes
EN	Park Shift Interlock	No problem found	None required	-Speed deact changed in Oct 02. Trending warranty. -Booster rod might be changed pending testing.
FN	Lis On	No problem found	None required	-Speed deact changed in Oct 02. Trending warranty. -Booster rod might be changed pending testing.
VN127	n/a	Low R's	None required	None required
SN195	n/a	Low R's	None required	None required

Design Changes to Reduce Methode's BOO Warranty

Methode Switch	Customer /Tech	Field Analysis	Switch Design Changes	System Changes
C170	Lts On & Park Shift Interlock	TBD	None at this time	-System released by Europe; changes made unknown.
U204	Lts On & Park Shift Interlock	TBD	None at this time	- Speed deact change (Oct02) - Brake pedal box- process control tightened (Dec02)
DEW	Lts On & Park Shift Interlock	Low R's	None at this time	None at this time
M205	Lts On & Park Shift Interlock	Low R's	None at this time	None at this time

Summary of Platform System Stack-ups (23Jun03CY)

9057 905-0001

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MY Implemented	Vehicle	DSBY Info	DSBY Info	DSBY Info	DSBY Info	Design History (based on points and CR's)	Action Taken/Under Review	
1987-1988 (Electrical thru J.880CY)	D1101	Brake On Off Switch PWM (2 terminal spring- 8.5-125A)	Resistor/Cut-Down Cut Down Sw Type	Booster & Rod	Final Piston	Adj Piston		
		Lincoln 106b-13400 (8.705-8.718)	183	183 (DSBY FT4, D188 & W128 -same booster)	183 LDM bushing 490-2438-4	adj	DSBY Piston changed material and terminal (C-1075086) DSBY Piston terminal change. DSBY KSR as- 2 changes (Stat & 488CY); rife chng (EC2028 & EC1812)	
1988 (LJ88 thru Aug88CY)	D186 Taurus Wagon	See above	MultiCoil?	Bosch 1F12-2895-00	KSR 1F12-2450-00 1F12-2450-00 (488 v. NCR)	adj	DSBY to 1288CY KSR as- 4 change: bushing, spring and coil holes. DSBY KSR as- added hole for adj pin sets, pin orientation chng. (EC1852) DSBY KSR as- chng in bushing and spring (EC1874) DSBY KSR as- added holes for wiring (EC1877) DSBY KSR as- holes added for adj piston sets, & new diameter hole (EC1887) DSBY KSR as- Pin orientation (EC2027) DSBY Piston document (not on FORD print) mentions reverse design (tolerance feature to improve ride/steer) DSBY Piston document (not on FORD print) change spring design to center forces	DSBY Per RMC the "1FLZ" term without pins are being used. Rechecked is possible but will add cost to unit)
1988 (LJ88 thru Aug88CY)	D186 Taurus Sedan	See above	MultiCoil?	Bosch 1F12-2895-00	KSR 1F12-2450-00 1F12-2450-00	adj	DSBY Piston: eliminated tooling DSBY Piston: "in" released "out" switch, mechanical chng for installation, replace sw. Range chng. shortened connector rib. DSBY Piston: "in" terminal relocation improvement, terminal base chng, material chng (poly to nylon), dim chng on terminal 1 & 2. DSBY KSR as- added hole for adj pin sets, pin orientation chng. (EC1852) DSBY KSR as- chng in bushing and spring (EC1874) DSBY KSR as- added holes for wiring (EC1877) DSBY KSR as- holes added for adj piston sets, & new diameter hole (EC1887) DSBY KSR as- Pin orientation (EC2027) DSBY Piston document (not on FORD print) mentions reverse design (tolerance feature to improve ride/steer) DSBY Piston document (not on FORD print) change spring design to center forces	
2808- Present	D186 Taurus Wagon	Piston YP1T-13428-8A (2 term) (New DSBY. POKE YONKE & Piston rife changes in DSBY) (Initial range: 0.705 - 8.718) (Stat range: 0.705 - 8.718) (Stat in range: 0.713-0.722) Pin Hyst-0.03 Contact Hyst- 0.025 Hog mate- Nylon H-4step Pins mate- Polyester, rife step Spring mate- ? Spring range- 42.5lb Tolerance of mounting hole? (design evolved from Expr wheelset)	MultiCoil YH1-8824-0	Bosch 1F12-2895-00 (w/ign 82888)	KSR 1F12-2450-00 1F12-2450-00 LDM bushing 490-2438-4	Tailor 1F12-2454-00 (488 bush calls 3:1) LDM bushing 490-2438-4	DSBY Rife change at same time (stat/Novcom) DSBY KSR as- rife chng (EC2177) DSBY KSR as & in- pin orientation changed (EC2187) DSBY Bosch "in" released for wagon production DSBY (B JI DSBY) RMC problems - hood/tyrlik design proposed. Fiat fit designed but used per PVC. (Fiat SW-well CCRD paper) DSBY HI Temp Grease on pivot spring in production 112880 HI Temp Grease on drive gear in production DSBY Tailor: grease chng (117762) DSBY Tailor: multiple chngs (119436) DSBY RECALL: Adj Piston: loose, when grease from piston box and replace box with 1F12-1482-00 (included new switch) per Lynb 183K Mts were loose... so reverse reported against switch is true. -check to supplier GM 82 2808/87	1982 RECALL for piston distances (production May88 thru Sep84M01)

FORD-988 4887

BY	Vehicle	Brake On Off Switch P/N (2 terminal spring- 0.5-4.25)	Workstation Cat Descr for Type	Resistor & Res	Front Pedal	Adj Pedal	Design History (based on prints and CRY)	Actions Taken/Under Review
2088 (Aug88 thru Aug90CY)	D986 Taurus Sedan	Poltek YF1T-13488-AA (2 term) (initial range:0.708 - 0.716) Ply Hyst=0.001 Contact Hyst=0.025 Hsg mat= Styels H-amp Plyr mat= Polyester, only after Spring wrap= 7 Spring wrap= 22.5lbs Tolerance of mounting hole? (design received from Supr reference) (design adapted from Supr reference)	See above	Boech W12-2085-aa (pedal)	KSR W12-2085-aa W12-2085-ba LDM bushing C90a-2a300-s LDM bushing C90a-2a300-s	Tallex W12-20734-aa Gen 1.34mm bush to be 4- 3mm due to pedal arm not straight as the arm tries to find center of pivety	1921-2088 CAP points w/ Poltek abs code 0007 (manufactured 10/1988) bush located distance not matching gauge go page, resulting in lower resistance. "Ls or" Shoulder Rad change at same time (Ask D'Norady) 47700 Boach aa- Disphvags change 290CY KSR aa- not dim change (9C177) 290CY KSR aa & ba- pin diameter changed (9C22487) 00-61CY (S J1 08MY) EDS problems - hockepitck design proposed. Field M designed but w20 ga PVC. (Ref 04Novel CCR6 paper) CRD8 Wire length to changed 774008 Wire extent revised 771408 Add to stop after the pedal only. 101CY Tallex: grasso change (91177037) 290CY Tallex: multiple change (91190385) 290CY RECALL (Adj Pedal) tested and production changes to high temp grasso. Service M1 tested which included new switch. 290CY? Flat SPR in Make range	1982 RECALL for pedal distance (production May88 thru Sept14D1)
2091 (Aug88 thru Aug91CY)	D986 Taurus Sedan	See above	See above	Boech W12-2085-aa (pedal) W12-2085-ba (spring)	KSR W12-2085-aa W12-2085-ba LDM bushing C90a-2a300-s	See above	290CY Pulse Volt removed from production due pedal return. 00-61CY (S J1 08MY) EDS problems - hockepitck design proposed. Field M designed but w20 ga PVC. (Ref 04Novel CCR6 paper) J1 08MY Unique pedal wire used as result wags production halted by 290CY. J1 (7) (Revised/Regrn?) Poltek bumps rev in add base of mounting brake to keep with interference with pedal. 290CY KSR ba- multiple dimensional change	1982 RECALL for pedal distance (production May88 thru Sept14D1)
2092 (Aug91 thru Jul90CY)	D986 Taurus Sedan	Poltek 2P1T-13488-AA (2 term) (initial range:0.708 - 0.716) (988 range:0.709 - 0.718) Ply Hyst=.005 Contact Hyst=0.025 Hsg mat= Styels H-amp Plyr mat= Polyester, only after Spring wrap= 6-12.5lbs	Multiple 2P1-8824 a	Boech W12-2085-aa (pedal) W12-2085-ba (spring)	See above	See above	290CY Poltek decreased (On PCRD drug???) minimum in plating to cause to splines the switch. 290CY Switch low range range added to 0.709 1290CY Tallex: switch receiving pin changed (adjustable) to reduce circuit lag to 4.8mm. 290CY Poltek Color change (C90a-4744)	1982 RECALL for pedal distance (production May88 thru Sept14D1)
2093 (Jul82 thru present)	D986 Taurus Sedan	See above	See above	Boech W12-2085-aa (pedal) W12-2085-ba (spring)	See above	See above	290CY Switch low range range added to 0.708 at the request of Chassis (PVT Atlanta) based on test effect observed. 0.708 was introduced for production and service life. 1290CY Switch receiving pin changed (adjustable) to reduce circuit lag to 4.8mm. 1190CY LDM out of tolerance, brought back in by 290CY.	290CY Poltek low and shifted from 0.708 to 0.710. 1800CY Part 1 Dimensional Validation Analysis on Adj Ped w/ Poltek. Results showed circuit >7mm...recommending switch pedal change 4382. 1102-300CY Lab testing 290CY Low range study kicked off for 18A2 (Field M & production) completion due end of May93?
2094 (Jul82 thru present)	D986 Taurus Sedan	See above 00CY Part number roll for all 2 terminal: radius change + same new rev history; 2P1T-13488-AA (988 range to be 0.710 - 0.720)	See above	Boech W12-2085-aa (pedal) W12-2085-ba (spring)	See above	See above	180 Radius change, (2nd shift lot) into change and spring change on URR2, URR1, V22R, D186- C1400265.	

MY	OSBY Info	OSBY Info	OSBY Info	OSBY Info	OSBY Info	Design History (Based on prints and CTRs)	Action Taken/Under Review
1999-01	Brake On Off Switch P/N (2 terminal upgrade- 6.5-122)	Revised Cruise Ctrl Desc Sw Type	Booster & Res	Field P/Ns	Adj P/Ns	0907 Poltek Tooling locked off 0907 Poltek connector relocation 0907 Poltek Identification in housing for plunger stop 0907 Poltek Connector profile update	0907CY: Wire-hair study on pedal position (R/R) showed all pedal out of spec. 0907CY: Low end of gap made changed to 0.710 (field) and 0.710 (production) from 0.700 (CRP?) 0907CY: Tightened ends and break range to 0.711 to 0.720 for field.
2002	See above	See above	TRW 122-25195-ad			0907CY-0907CY: TRW booster change with lower force.	
2003	See above	See above	TRW 122-25195-ad	122-2450-ab 222-2450-ab		1199 Poltek Field Mt make wgs tightened due to "gals of"; See RFRnd study. 1999 Poltek Tolerance added to contact reference dimensions (0F2T).	0907CY: Tighten make and break range of switch to 0.711 to 0.720 for production and field (L&R used to date). 323-13400-ca issued for 2004
2004	See above	Method 420-6c795-ab	New on all TRW (A4) 323-25195-eg (V4) 323-25195-ee (F4) 323-25195-ee 323-ba, ba,lg,ea -Radius now on all rods	New KSR(?) y22-2450-ab 222-2450-ab 323-2450-eg LDM bushing c90a-2a300-a	New Tollon GEN F y22-2450-ab 222-2450-ab 323-2450-aj 323-2450-aa V4 BOM? LDM bushing c90a-2a300-a	Note: Tollon discontinued from V229. Pedal mounted red/white dated to of booster reworked.	0907CY: Chassis and ENGINE evaluate system SC's and controls...see separate matrix for wires. 0907CY C11476205 initiated changes for all 2 terminal applications: make range shifted by redesigning the plunger multiplier. Also revised bend radius to prevent terminal bending (LPI02 Seat Issue). Also considering updating spring strength to 10-14.5lb. Timing for release set to be 0.010s (0907). 0907CY: ITP builds identify the pedal base and alignment on B vehicles as in spec. 0907CY: Builds to be evaluated.

1000-800 4510

MY	Vehicle	Brake On Off Switch P/N	Clutch Switch	Redefined Control Cut Down Sw Type	Brake B Ped	Foot Pedal	Adj Pedal	NO	Design History (based on policy and CV's)	Action Take/Order Review
1988-91	Explorer Navigator	Polka P476-1248-AA (2 yearly) (P.766-0.718; see page)	nk	MEC Int Pressure	TBD	TBD	TBD	nk	DESIGN: P476-1248-AA retained SAPCV: P476-AA: As shipped changed. SUDCV: P476-1248-AA rd., -AA cancel. MUTCV: Plug vacuum Change sv'g?	
2000	Explorer Navigator	Polka 2L1T-1248-AA (2 yearly) (P.766-0.718; see page)	nk	MEC Int Pressure	TBD	TBD	TBD	nk	DESIGN: 2L1T-1248-AA retained SUDCV: 2L1T-1248-AA rd., -AA cancel. MUTCV: Plug vacuum Change sv'g?	
2000	Explorer Navigator	See above	nk	See above	TBD	TBD	TBD	?	Change sv'g? DESIGN: Polka rd substituted to accept application. For driver to be added to controls-1&2 & all other 2&4 scheduled -not have and fully maintained. NOTE: Review NITE.	
2004	Explorer Navigator	2L1T-1248-AA (2 yearly) (P.766-0.718) Alert car Mkt Dept for the driver 2L1T-1248-AA (2 yearly)	nk	See above P/N for BMY to go to present SP-1248-AA ...need chassis ...cancel on last change of Reg.	Block Y134-2698-AA	NA	Y134-2698-AA Controlled Travel-2007	TBD	Change sv'g? DESIGN: Polka rd substituted to accept application. For driver to be added to controls-1&2 & all other 2&4 scheduled -not have and fully maintained. NOTE: Review NITE.	
2005	Explorer Navigator		nk	MEC Int Pressure						
2006	Explorer Navigator		nk	See above						
2007	Explorer Navigator	2L1T-1248-AA (2 yearly) (P.766-0.718) Alert car Mkt Dept for the driver 2L1T-1248-AA (2 yearly)	nk	See above	Block Y134-2698-AA	NA	Y134-2698-AA Controlled Travel-2007	TBD	Change sv'g? DESIGN: Polka rd substituted to accept application. For driver to be added to controls-1&2 & all other 2&4 scheduled -not have and fully maintained. NOTE: Review NITE.	
1988-91	Ford F-150 (pickup)	Polka P476-1248-AA (2 yearly) (P.766-0.718; see page)	AP	MEC Int Pressure	Block Y134-2698-AA	IGN Y134-2698-AC, CB	TBD	TBD	DESIGN: P476-1248-AA retained SAPCV: As shipped changed. SUDCV: P476-1248-AA rd., -AA cancel. MUTCV: Plug vacuum Change sv'g? - 1248 Texts supply the platform (N.14-24408-NA) JAGP	

FORD-008 4011

BY	Vehicle	State On Off Switch P/N (NOTE: 4-6-8 ton models have 10-44.000 spring)	On/Off Switch	Restraint Device Cut Down Sw Type	Encoder & Bus	Front Pedal	Air Pedal	NO	Design History (based on prints and CTRs)	Action/Tables/Order Review
2584	F250F250 (P25)	SLT-12485 @ J1 (8.708 to 8.716) Start/Run Mtd Dept for the other SLT-12485 P25 Q251	AP	Methods 2587-08072-AA	Branch YL24-0808-AA Takes 1L24-0808-AA, BA	RFR 2L24-0808-AC, CB	RFR	YES	SNOCY: SLT-12485 Release SNOCY: SLT-12485 Make table added, pin out added and enhancement added. 1580CY: SLT-12485 Run to make 1581CY: SLT-12485 Rev to make Check 1587 Module Input RIB also open Reading status line - 0000A SNOCY: J1 CTR1 were associated with Dash Steering Column INTER. SOD (enhancement) requiring 24 inches per week 9/26 Jan- J1.	
2585	F250F250 (P10)	PCB P25-12485-AB (5 ton) (8.708-8.716: see print)	AP	MPC Mtd Pressure	Branch P25-12485-AD (Mac) 1C24-0808-AA	RFR YC24-0428-AA, BA	YES	NA	SNOCY: P25-12485-AA enhanced SNOCY: As stopped changed. SNOCY: P25-12485-BA, BL, -AA cancel. SNOCY: Penge Enhanced Check 1587	
2586	F250F250 (P10)	See above		See above	New Design	RFR	YES	NA	Check 1587	
2587-01	Excursion	PCB P25-12485-AD (5 ton) (8.708-8.716: see print)	AP	MPC Mtd Pressure	TR1	YES	YES	YES	SNOCY: P25-12485-AA enhanced SNOCY: As stopped changed. SNOCY: P25-12485-BA, BL, -AA cancel. SNOCY: Penge Enhanced Check 1587	
2587-01	Excursion (P25)	PCB P25-12485-AB (5 ton) (8.708-8.716: see print)	AP	MPC Mtd Pressure	Branch 1L24-0808-0E, EE 2L24-0808-AD	RFR 1L24-0808-AC, C1, DL, 0L Takes 1L24-0808-AT, BT		NO	NO vehicle, New Dash PCB when under repair. PCM uses the signal for speed control servo. This is replaced by the driver's brake application pedal which is provided by the NO Module. SNOCY: P25-12485-AA enhanced SNOCY: As stopped changed. SNOCY: P25-12485-BA, BL, -AA cancel. SNOCY: Penge Enhanced *Ranger has the pedal only. J2TB Function reported in 1/02; INTER resulting in plant use cancel. Check 1587	1580CY: Discontinued Windows analysis complete; data tabulars published to be Adaptive-Offset based on this level of switch to be 0207. 1581CY: Continuation of Low on wheel bandwidth used on ROP Power. SNOCY: PVT 1 ready to 0-240 on edit. TRACY: Function being added to PCM (p. 1016) also in 2-2002 are related table with application specific distribution changes.
2587-05	Excursion Sport & Sport Trac (P25)	PCB P25-12485-AB (5 ton) (8.708-8.716: see print)	Master	MPC Mtd Pressure See Methods P25-12485-AA	Branch 2L24-0808-0A, CA	RFR P25-0400-00, AA	RFR		SNOCY: P25-12485-AA enhanced SNOCY: As stopped changed. SNOCY: P25-12485-BA, BL, -AA cancel. SNOCY: Penge Enhanced Check 1587	

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NV	Vehicle	COMV Info			COMV Info		COMV Info		Design History (Parent or prints and CTRs)	Autotech Technical Order System
		Brake On Off Switch	Clutch & Starter Switch	Restraint Control Cut Down Switch	Decoder & Read	Fixed Pedal	Adj Pedal			
2000- 2001	C170	Method	Method	Method						
2002- 2004	C170	Method	Method	Method						
2006	C170	Method 9300-13480-af	Method 9400-111102-af	Method 9800-7c034-aa 9800-7c034-ab	Supplier? 9200-2y100-0g,0j	Supplier? 9200-2y100-0g,0j 9200-2y100-0h,0i 9200-2y100-0k,0l Illustration: L2000-000701-aa				
COMV- 2100V	200V	Method	af	Method						
COMV- 200V	200V	Method	aa	Method						
200V	200V	Method	af	Method						
2100V- 200V	1000V/ 1200V	Method 3L04-13480-aa	Method 9400-111102-af, 01 Illustration: 9400-111102-01	Method 3L04-0P004-aa Illustration: 9400-0E004-01	Supplier? 2004-20100-ab,0b,0c,0d 2004-20100-0e,0aa,0b2 -0c,0d,0e,0f,0g,0h -0i, 0j, 0k, 0l, 0m, 0n, 0o, 0p	Supplier? 2004-2000-aa 2004-2000-ac 2004-2000-ad,0a,0b,0c 2004-2000-ae		11000122		
COMV- 200V	2000V	Method 9200-13480-af	aa	Method 1704-0P004-aa	Supplier? 9200-2y100-0g	Supplier? 9200-2y100-0g				

FORD-000 4513

BY Engineering on	Vehicle	Platform Brake On Off Vehicle P/N	ECU Hardware	Platform Brake Drive Type	ECU Type	ECU Part No.	ECU Part No.	ECU Part No.	ECU Part No.	ECU Part No.	ECU Part No.	ECU Part No.	ECU Part No.
History to ECU	01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01
ECU	01		01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01
History to ECU	01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01
ECU	01		01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01
History to ECU	01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01
ECU	01		01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01
History to ECU	01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01
ECU	01		01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01
History to ECU	01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01
ECU	01		01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01	01-0000-01

114-0000-01

DMY Info

Model Year	Vehicle	Brake On Off Switch P/N	Terminal	EMV related Warranty Problems? (Reported from Dec-Mar 95 /96)	Design Actions
History-Present	EN6 PN	Litelluse e97b-13480-ba	2W1T-14474-AA 18awg AX		
History to USMY	EN95	Litelluse e72b-13480			
History to DMV	V127	Litelluse e97b-13480			
1998	D188 Taurus Wagon & Sedan	Litelluse f00b-13480	97bg-14421-aaa (?) 97bg-14421-aaa/bbb		
2000-Present	D188 Taurus Wagon	Poltek YF1T-13480-BA 2 terminal	97bg-14421-aaa (?) 97bg-14421-aaa/bbb, 20ga, AH 5B37T: 97BG-14474-ABB, 18 awg AX	2000MY: 330 claims 2001MY: 80 claims 2002/03MY: 25 claims 2004MY: TBD 2005MY: TBD	19W3: Full Dimensional req'd on connector & terminal sealing
2000-01	D188 Taurus Sedan	Poltek YF1T-13480-AA 2 terminal	TBD	2000MY: 2000 claims 2001MY: 220 claims	
2002-05 (Jul02 thru present)	D188 Taurus Sedan	Poltek 2F1T-13480-AA 2 terminal	w8-14844-ba 97bg-14474-aaa, 20awg BC (BC=10mil PVC) 5B3: 97BG-14474-ABB, 18 awg AX	2002MY/03MY: 100 claims 2004MY: TBD 2005MY: TBD	11/02CY 1) Lab testing (Mfg 4) Part 1'02L: 6 Litelluse & 6 Poltek tested w/ shims (offset) & exposed to oil, 20ga PVC used. -Poltek had higher mV drop @ switch however within tolerance. -Sample 0.708 contacts staying closed by 211k cycles. -Covers show burning/melt on: 0.706 (211k cycles), 0.718 (254k cycles), 0.7075 (350k cycles) however switches continued to operate 2) Litelluse also conducted test by exposing oil while switches were m't. Litelluse showed no signs of deformation and mV not excessive. 12/02CY 1) Lab test Part 2 'EDS + No OIL: 12 Poltek (shim+no oil) w/ preset maker; 8 wired using 16ga AZ, 4 wired with 20ga PVC. -At 200k cycles high mV drop w/ 20ga PVC as well as switches with low mV (0.706). Visible -Continued test (200cycles) replacing 0.706 switches with 0.710 switches. All 20gs were replaced w/ metal tabs. -Samples at 0.715 & 0.710 (both 20PVC) were intermittent (staying closed). -Sample at 0.715 & 0.717 (both 20PVC) remain on test stand for continual testing since elevated mV observed in test 70k cycles. 01/03CY Lear crimp study kicked off for 18AZ (field kit and production applications) completion due to 01/03CY Litelluse kit developed & testing for field fix (T8B). 01/03CY Proposal: Make low end raised to 0.713 from 0.708. 02/03CY Cheats and EESB evaluate system SCs and controls...see separate matrix for minutes. 02/03 Lear Wiring changes to 18 awg AX/AZ. 10/03: Full Dimensional req'd on connector & terminal sealing
1999-01	Explorer	Poltek F97B-13480-AB 5 terminal	Lear	1999MY: TBD 2000MY: TBD 2001MY: TBD	10/03: DUR5: High flex under rve (cold temp test)

1000-000 4815

Model Year	Vehicle	Wiring On Off Switch Pin	Terminal	EDM related Warranty Problem? (Reported from Dec-Mar 05 AWB)	Design Actions
2000-04	Explorer (U162)	Poltek YP1T-13480-AA 2 terminal	W2H-14474-ba 97kg-14474-abb, 10awg BC (BC=10mil PVC)	2002-05MY: 120 claims 2004MY: TBD	
2000	Explorer (U261)	Methods 3MST-13480	Somebody Delphi?	2004MY: TBD	
1999-02	Whisper	Poltek XP2T-13480-AA	W3B-14474-ba 97kg-14474-abb, 20awg AH	1999MY: TBD 2000MY: 66 2001MY: 64 2002MY: 76+	
2003 (4/05 runner)	Whisper	XP2T-13480-AA	See above (AH=thinned XLPE)	2003MY: 4 claims	
2004	V220	XP2T-13480-CA 3P2T-13480-CB	To be confirmed by Jack Williams (Delphi)	?	
1998	Expedition/ Navigator	F87B-13480-AB 5 terminal	AFL AX7		1000 HI flex / re-couling underway for production (target 10/04)
2000-03	Expedition/ Navigator	Poltek XL1T-13480-AB 6 terminal	F87B-14474-AC E7EB-14474-CA, 18 awg AX, (AX=High Flex)		
1999-03	F130F250 (P100)	Poltek F87B-13480-AB	97B-14474-ab (20MY) E7EB-14474-CA, AX?		
2004	F130F250 (P221)	Poltek XL1T-13480-AB 6 terminal	Starwre		2005: Full Dimensional run on connector and terminal seating
1998-Present	F250/F350 (P131)	F87B-13480-AB	AFL/Delphi		
1998-Present	Excursion	F87B-13480-AB	?		
1998-Present	Ranger	F87B-13480-AB 5 terminal	97B-14474-ec 97kg-14474-abb(or abb?) 10awg AH input, 22awg AH output, (AH= thinned PVC)	1998MY: 1999MY: 2000MY: 2001MY: 2002MY:	
1998-Present	Explorer Sport Explorer Sport Trac	Poltek F87B-13480-AB 5 terminal	403: Low Costing AX?	1998MY: 2000MY: 2001MY: 2002MY: 2003MY:	
2000-07	EN & FN145	Poltek F87B-13480	Delphi		
2000	Mustang (9787)	Methods 3MST-13480-			
	D24r250	Methods 3MST-13480-			
	U261	Methods 3MST-13480-			
		Methods 3MST-13480-			

Chassis Requirements for BOO Switch

Please confirm the following components compliance & that they are identified as critical characteristics on the Ford drawings: (Cross Platform)

Component Information

Reference

Brake Booster Rod (Fixed and Adjustable):

Hole Diameter: 16.23/16.26 mm	
Distance from Flat to Hole tangent: 2.64/2.95mm	
Radius on end of rod (teaser): 25.4 mm +/- 2mm	Windstar booster rod is flat instead of radius and also at a significant angle relative to the pedal pin. Taurus also has the issue of angularity between the booster rod and pedal pin. Ranger may also have this condition, as all but 1 returned BOO swt.
Thickness of the rod arm: 2.65/2.95 mm	
Chamfer on the mounting hole of the rod: <i>undefined per print</i>	Inconsistent chamfer from side to side on the same rod and from rod to rod. This impacts the effect of booster rod to pin angularity.
Increasing the length of the booster rod flat to 24mm will eliminate issue of BOO switch rotation.	This will prevent switch being mis-installed and then rotated or being partially rotated (by customer foot, e.g.) and staying in this orientation, keeping the stopclamps fit.
Finish on Booster Rod: Zinc Plate, not a phosphate and oil (shiny black appearance) type finish, affects friction between switch and rod.	U222 & U226 have what appears to be a phosphate and oil finish.

Booster Rod Bushing:

Wall Thickness: .52/.57 mm with measurements not averaged and controlled with Diameter Concentricity or Runout of 0 at Maximum Material Condition.	This has been seen as an issue on Windstar and some tool maintenance work on current component has been performed by LDM. New dieg & tooling req'd?
--	---

Brake Pedal Pin (Fixed and Adjustable):

Diameter: 14.15/14.19 mm (after finish)	
Length from pedal to retaining clip hole tangent:	Some returned BOO switches have witness marks on the plastic housing from the yellow retaining clip. Also, this width will need to be increased by 1 mm if the plastic "redundant" plastic is used.
Perpendicularity of retaining pin hole to pedal pin, any non-perpendicularity reduces the clearance to the BOO switch.	
Perpendicularity of Pin to Pedal Arm: .10 mm Maximum (this reduces the amount of lost motion available by .004")	This affects the lost motion available and may be one of the contributors on the Ranger can't shift out of park issue.
Finish on Pedal Pin: Zinc Plate, welding of pin to pedal arm removes the finish and leaves a powdered oxide, which increases friction between the pin and the switch. Thus, welding of the pin is undesirable.	This oxidation has been seen on all platforms.
Provide a smooth bearing surface for the BOO switch on the pedal arm side, either via a thin plastic washer or shoulder on the pin (new design for Taurus). This eliminates the friction from either sharp edges on the pedal arm or corrosion of the pedal ar	U222/U226 use a plastic washer, as do applications using the Littlefuse switch. On the Windstar, some of the pedal arms are stamped in the direction which leaves a burr on the switch side.

Booster Assembly/Pedal Assembly (Fixed and Adjustable):

Cheats Requirements for BOO Switch

Alignment of Booster Rod on Pedal Pin needs to be a dimensioned & controlled (via Critical Characteristic) feature on both assemblies and be controlled via GD & T back to common datum (the 4 way and two way studs/holes). It is currently only dimensioned	This condition can result in either the condition of stoplamps always on (if the switch is toward the low end of the make zone) or no stoplamps and/or cannot shift out of Park (if the switch is toward the upper end of the make zone).
Assembly must locate the end of the booster rod relative to the fwd tangent of the pedal pin as follows:	

1000-000 4010



**PROBLEM
RESOLUTION
PROCESS**

6-PANEL

13480: Stop Lamp Switch

Project Champion: Mike McCann
Process Owner: Megan Savage
Vehicle Lines: North American Platforms
Organization: NAT EESE - NAE
Project Location: Dearborn
Date: 13 June 03

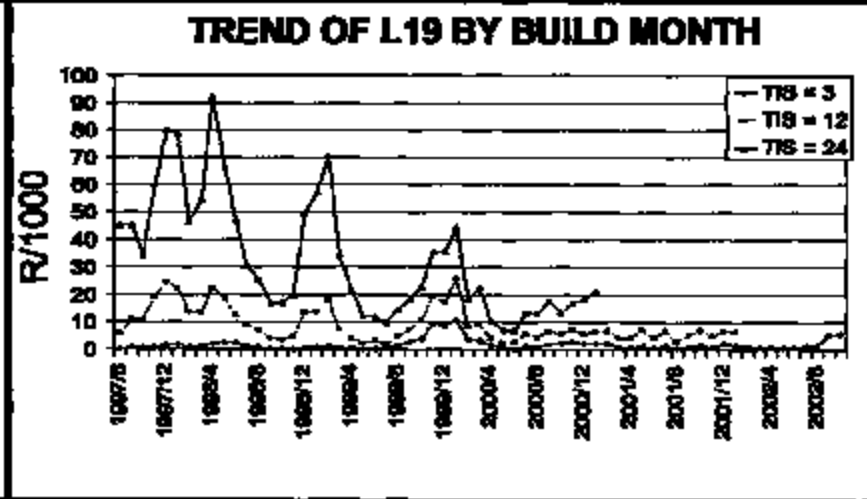
1000-000 4520



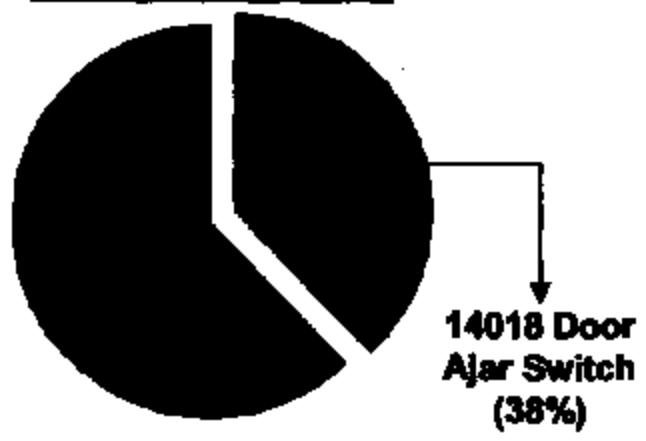
6-PANEL



VRT : Electrical	VFG:V07, V17, V77, V83	CCC: L19, G29, A85, L25, L29
Vehicle: Ranger		14018: Door Ajar Warning Switch



L19 MY2003 PARETO



FORM-006 4/02/01



6-PANEL

D M A I G R
DEFINE VOICE OF THE CUSTOMER

VRT : Electrical	VFG:V07, V17, V77, V83	CCC: L19, G29, A85, L25, L29
Vehicle: Ranger		14018: Door Ajar Warning Switch

VOICE OF THE CUSTOMER:

Brake Lights stay on even after ignition key is removed!
I'm stuck in park!
My cruise control won't work!

CTQ STATEMENT (Customer Requirement):

FMVSS: Taillamps must indicate braking as the vehicle begins slowing down.

TYPES OF STOP LAMP SWITCHES

Loss Travel type switches:

- This switch & booster rod are mounted on a pin which extends from the brake pedal .
- When the pedal is pressed, the booster rod moves rearward toward the switch to actuate it within a specified range of movement.

Plunger type switches:

- This switch is mounted on a stationary 'flag' on the pedal box and is NC by a moving target flag.
- As the brake pedal is pressed, the pedal arm moves toward the engine compartment; the target flag which is mounted on the pedal arm moves away from the switch causing the switch to change state .

COST OF POOR QUALITY:

WARRANTY SPENDING DURING FOR POLLAK LOSS TRAVEL IS \$X M (8 VEHICLES; 2T=, 5T=, 6T=) .
WARRANTY SPENDING DURING FOR LITTELFUSE LOSS TRAVEL IS \$X M (4 VEHICLES)
WARRANTY SPENDING DURING FOR METHODE PLUNGER IS \$X M (3 VEHICLES)

1803-008 4822

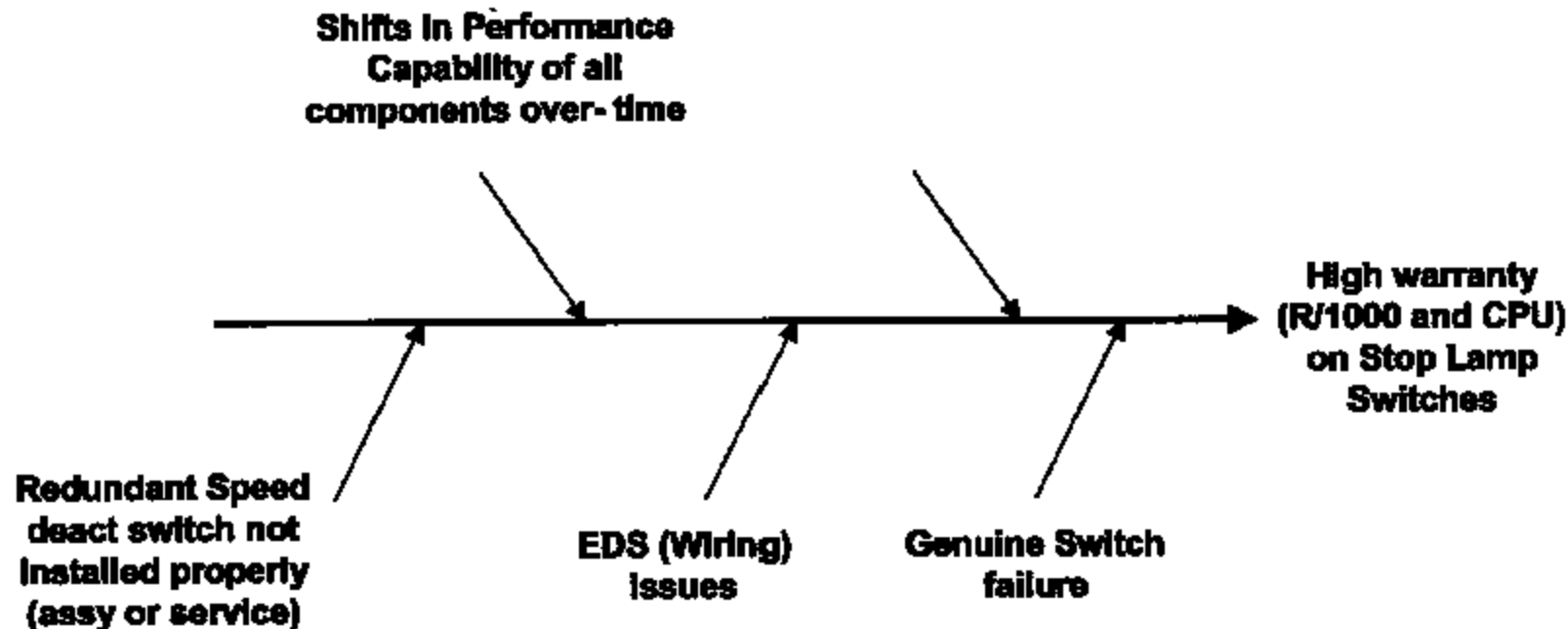


6-PANEL

D M A I C R
MEASURE CTQ (y) CAPABILITY

VRT : Electrical	VFG:V07, V17, V77, V83	CCC: L19, G29, A85, L25, L29
Vehicle: Ranger	14018: Door Ajar Warning Switch	

Cause & Effect Fish Bone Diagram: High Warranty (R/1000 and CPU)



CONTAINMENT (state reasoning if not required): Process Owner Date Before Data After Data

A permanent corrective action is being investigated for feasibility

R003-000 4/23



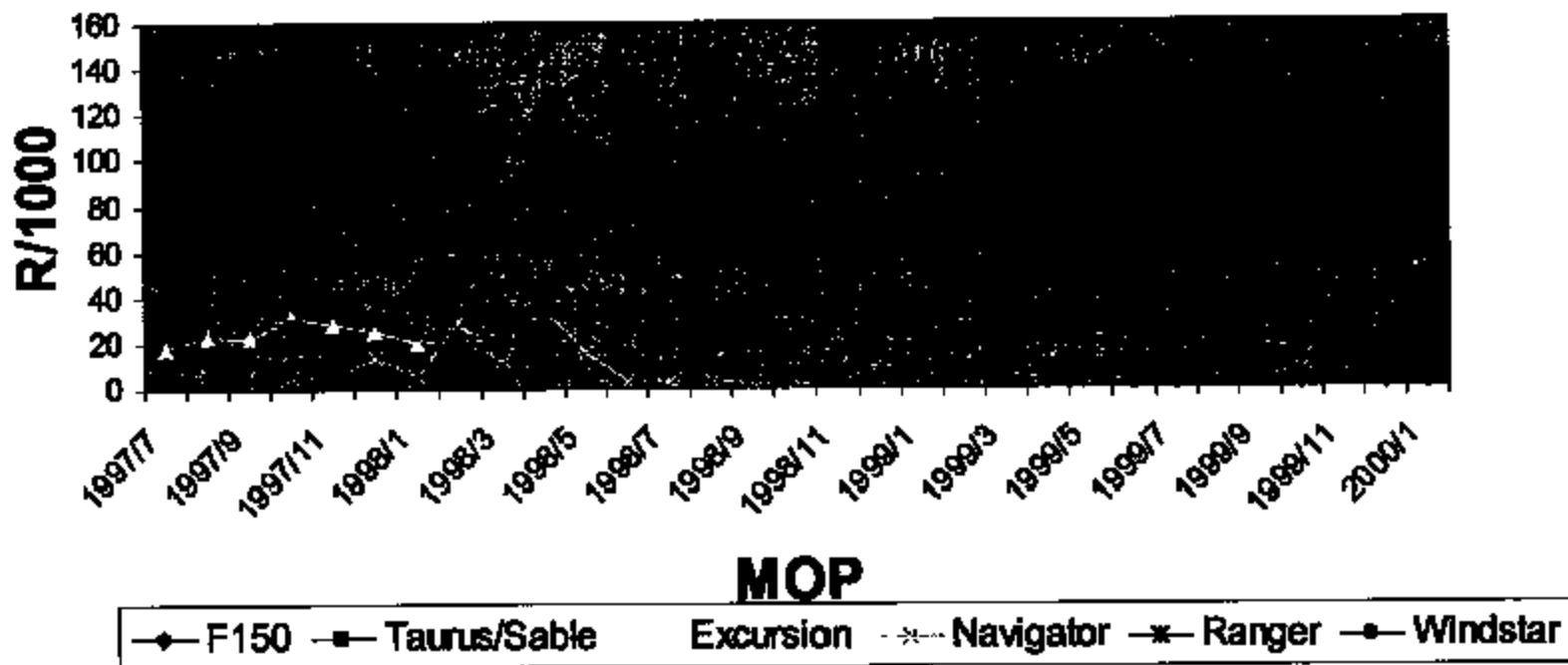
6-PANEL

D M A I G R
MEASURE CTQ (y) CAPABILITY

VRT : Electrical	VFG:V07, V17, V77, V83	CCC: L19, G29, A85, L25, L29
Vehicle: Ranger		14018: Door Ajar Warning Switch

Ranger vs. Other Product Lines 36 MIS R/1000 Historical Data:

36 MIS Door Ajar



RANGER 36MIS



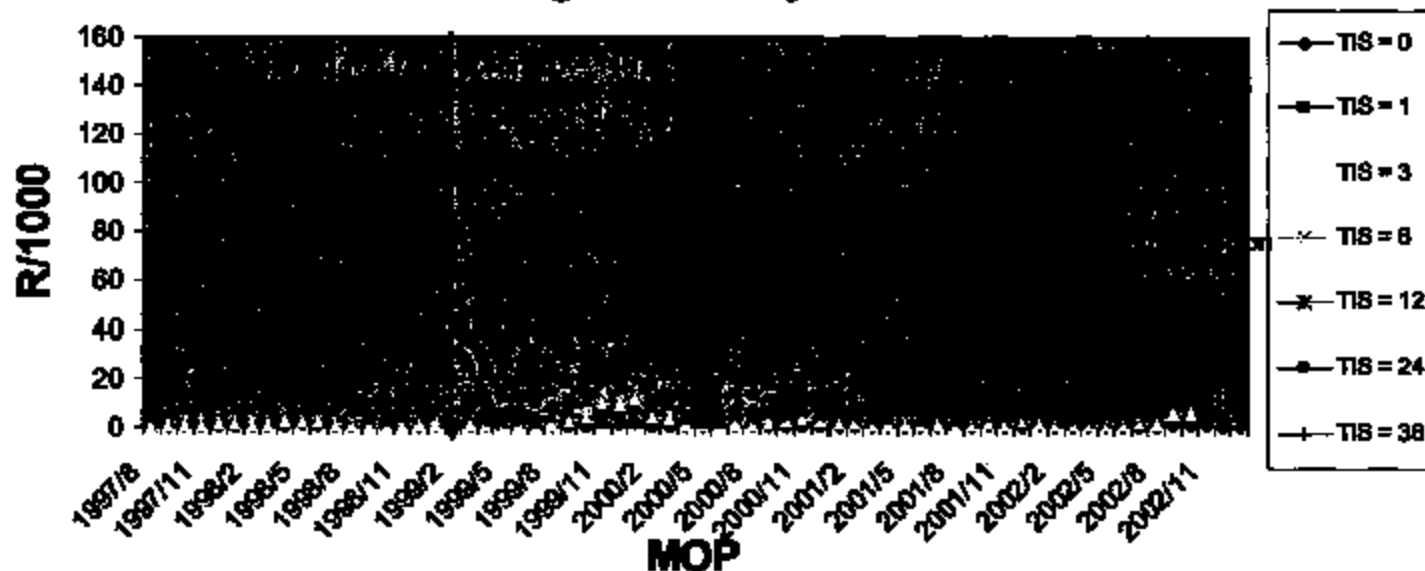
6-PANEL

D M A Y I C R
ANALYZE $y=f(x)$

VRT : Electrical	VFG:V07, V17, V77, V83	CCC: L19, G29, A85, L25, L29
Vehicle: Ranger		14018: Door Ajar Warning Switch

Key Process Inputs that affect Output	Actions planned/completed
1. Spring force on plunger too weak to resist dirt seal	Spring force increased from 7 to 14N Further increase limited by door closure effort

Ranger Door Ajar - L19



52524 808-3300



6-PANEL

D M A I C R
ANALYZE $y=f(x)$

VRT : Electrical	VFG:V07, V17, V77, V83	CCC: L19, G29, A85, L25, L29
Vehicle: Ranger		14018: Door Ajar Warning Switch

Key Process Inputs that affect Output	Actions planned/completed
3. Water freezes as it flows through switch, preventing plunger from fully extending	This is a new concern seen at TCAP with the new Methode switch

FORM-003 4/22/03



6-PANEL



ANALYZE $y=f(x)$

VRT : Electrical	VFG:V07, V17, V77, V83	CCC: L19, G29, A85, L25, L29
Vehicle: Ranger		14018: Door Ajar Warning Switch

Key Process Inputs that affect Output	Actions planned/completed
3. Water freezes as it flows through switch, preventing plunger from fully extending (..continued)	Apply synthetic grease to the plunger head area to water proof

- Adding grease to the switch proved to be very effective at preventing plunger from freezing
- Further testing verified adverse impact of grease on higher cycles approximating to 24 to 36 MIS

RO03-000 4B27



6-PANEL



VRT : Electrical	VFG:V07, V17, V77, V83	CCC: L19, G29, A85, L25, L29
Vehicle: Ranger		14018: Door Ajar Warning Switch

System Related Failure Modes & Possible Actions:

Key Process Inputs that affect Output	Actions planned/completed
4. Door fit problems and striker adjustment	Technician's verbatim indicates adjusting door striker after replacing the switch
5. Sensitive cam-plunger interface	Working with Intier to acquire stack-up data and process capability
6. Dealers have to spent lot of time to diagnose switch issues	Issue a service bulletin advising technicians of potential causes contributing to L19 along with a troubleshooting procedure
7. GEM software does not tell technician which individual switch may be causing an intermittent problem.	Need to study feasibility and cost of altering wiring and GEM software.

1003-000 05/26



6-PANEL



VRT : Electrical	VFG:V07, V17, V77, V83	CCC: L19, G29, A85, L25, L29
Vehicle: Ranger		14018: Door Ajar Warning Switch

Tests on initial prototype samples with a thermo-plastic elastomer (TPE) boots showed that the solution was effective with respect to the Splash and Ice Pack Testing and room temperature (see table below). TPE not suitable for endurance test (see test 3)

Design of Experiments				Results			
Test	Sample Size	Sample Level	Test Description		Y.O.	N.I.O.	
1	10	Prototype	Splash Test followed by Ice Pack Test	-30°C	✓	10 out of 10	
2	20	Prototype	Ice Pack Test (Immersion method)	-30°C	✓	20 out of 20	
3	12	Prototype	Electrical Endurance (with ice pack test)	85°C/85%		Aborted	Prior to 400 cycles at 85°C/85% bellows were found misplaced 2 out of 12
				25°C/85%			
				-30°C			
4	12	Prototype	Temperature Exposure	+85°C & -30°C		Still Running	4th Ice Pack - In Order
5	6	Prototype	Mud Drip Test	+23°C		Still Running	8th Mud Application - In Order
6	12	Prototype	Electrical Endurance (with ice pack test)	25°C/85%		Test Initiated	
				-30°C			

Production representative parts with silicon rubber boot full DV will be complete: May 7, 2003.

Automated line with manual boot assembly timing: 15 weeks (PV test included)

Fully automated line: Additional 12 weeks

R003-000 4/22/03



6-PANEL

D M A I C R Y

REPLICATE

VRT : Electrical	VFG:V07, V17, V77, V83	CCC: L19, G29, A85, L25, L29
Vehicle: Ranger	14018: Door Ajar Warning Switch	

REPLICATION (who else across Ford Motor Company could benefit?):

<u>Key Actions</u>	<u>Is this Replicable?</u>	<u>If Yes, Where?</u>	<u>Responsibility</u>
--------------------	----------------------------	-----------------------	-----------------------

All vehicle lines which have the door ajar switch and has water entry issues.

UPDATES TO CORPORATE KNOWLEDGE BASE (who else across Ford Motor Company could benefit?):

<u>Core Book</u>	<u>Change Made</u>	<u>Owner</u>	<u>Document #</u>	<u>Completed</u>
<input type="checkbox"/> Attribute FMEA				
<input type="checkbox"/> Design FMEA				
<input type="checkbox"/> Process FMEA				
<input type="checkbox"/> SDS				
<input type="checkbox"/> VDS				
<input type="checkbox"/> FDVS				
<input type="checkbox"/> <other specify here>				

PROJECT END - PROOF OF SUSTAINMENT:

Final design testing ongoing.

ROCC-018 4030



6-PANEL

VRT : Electrical	VFG:V07, V17, V77, V83	CCC: L19, G29, A85, L25, L29
Vehicle: Ranger		14018: Door Ajar Warning Switch

Door Ajar Switch

Improving Warranty Spending

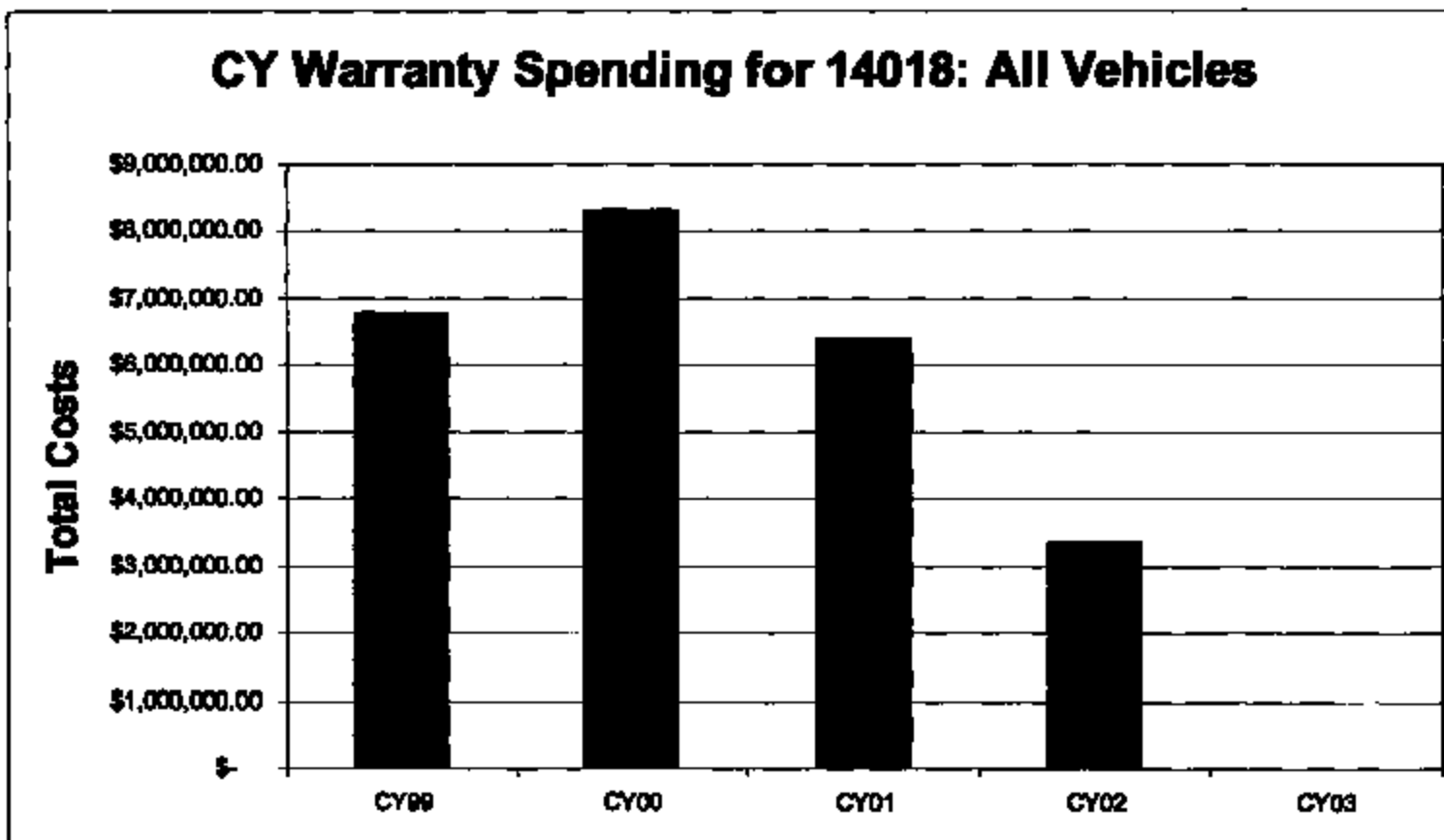
Repeat Repair Costs and Customer Satisfaction



6-PANEL

VRT : Electrical	VFG:V07, V17, V77, V83	CCC: L19, G29, A85, L25, L29
Vehicle: Ranger	14018: Door Ajar Warning Switch	

CY Warranty Spending for 14018: All Vehicles



1000-006 4832



6-PANEL

VRT : Electrical	VFG:V07, V17, V77, V83	CCC: L19, G29, A85, L25, L29
Vehicle: Ranger		14018: Door Ajar Warning Switch

Previous MY 14018 Ranger Repeat Repair:

- Total number of claims filed since April 1999 = 18,696
- Number of owners with one repair = 15,483
- Number of owners with one repeat repair = 1283 (7%)
- Number of owners with three times or more for repair = 204 (1%)



6-PANEL

VRT : Electrical

VFG:V07, V17, V77, V83

CCC: L19, G29, A85, L25, L29

Vehicle: Ranger

14018: Door Ajar Warning Switch

□ Previous MY Possible Action:

- Install Methode switch with old plug
 - \$230K Tooling
 - \$2.75 per piece
 - 30 Weeks Lead Time
- Add rain shield to door latch
 - Ranger's latch is outside the door seal allowing for water intrusion through latch – Cost not yet finalized

1003-000 4594



6-PANEL

VRT : Electrical	VFG:V07, V17, V77, V83	CCC: L19, G29, A85, L25, L29
Vehicle: Ranger		14018: Door Ajar Warning Switch

□ Potential Long Term Design Improvement:

- Use the new door latch with the integrated switch.
- Redesign the door latch to mount the switch at the top instead of the bottom of the latch
- Alter switch wiring and GEM software to identify individual switch failure
- Use a dry door design
- Use a Hall-Effect switch
- Control sheet metal for better door fit and install switch at B-pillar interface.

1003-000 4530



6-PANEL

VRT : Electrical	VFG:V07, V17, V77, V83	CCC: L19, G29, A85, L25, L29
Vehicle: Ranger		14018: Door Ajar Warning Switch

APPENDIX

1003-000 4536

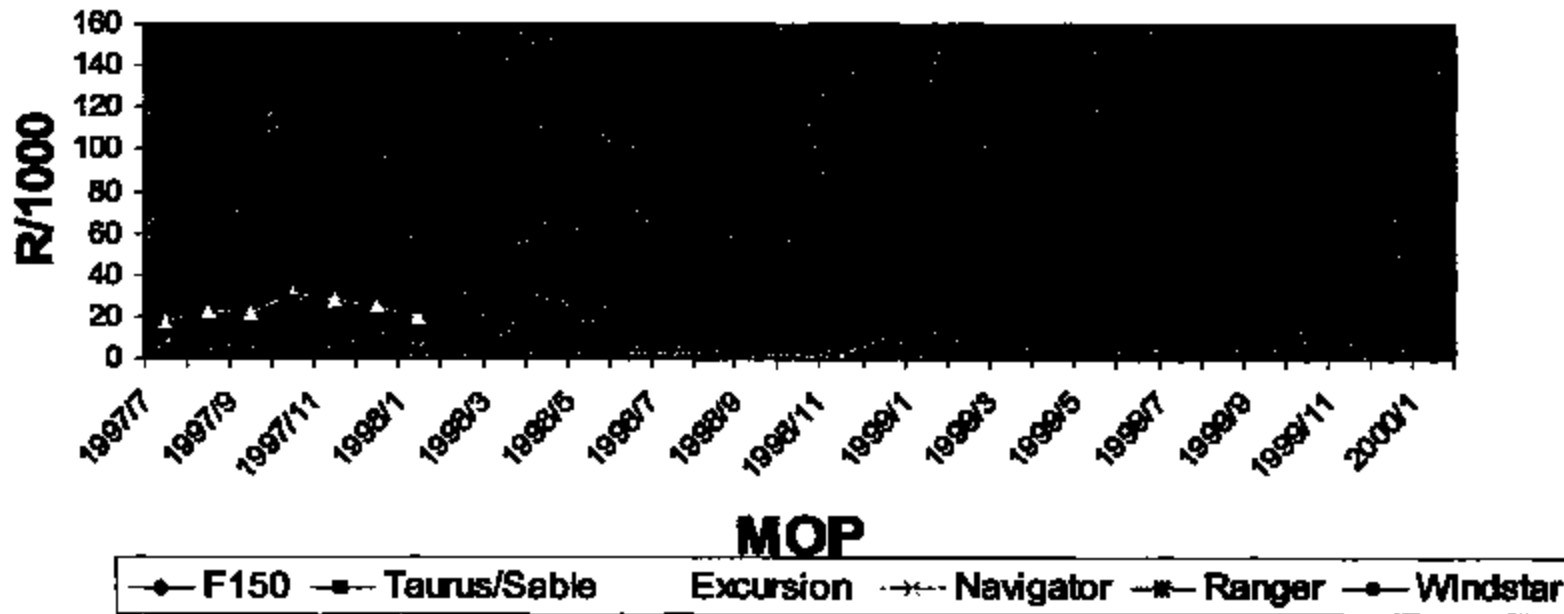


6-PANEL

VRT : Electrical	VFG:V07, V17, V77, V83	CCC: L19, G29, A85, L25, L29
Vehicle: Ranger		14018: Door Ajar Warning Switch

Ranger vs. Other Product Lines 36 MIS R/1000 Historical Data:

36 MIS Door Ajar



K003-003 4537

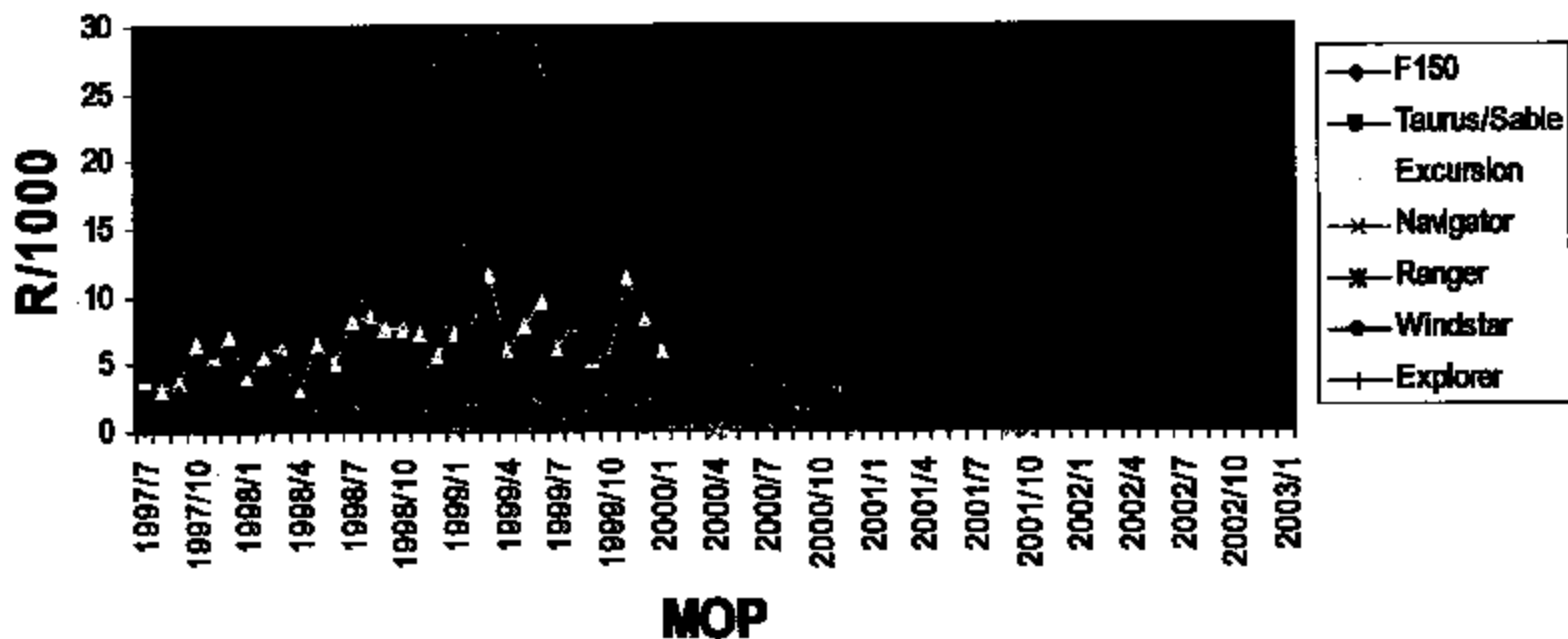


6-PANEL

VRT : Electrical	VFG:V07, V17, V77, V83	CCC: L19, G29, A85, L25, L29
Vehicle: Ranger		14018: Door Ajar Warning Switch

Ranger vs. Other Product Lines 12 MIS R/1000 Historical Data:

12 MIS Door Ajar L19



R003-001 4530

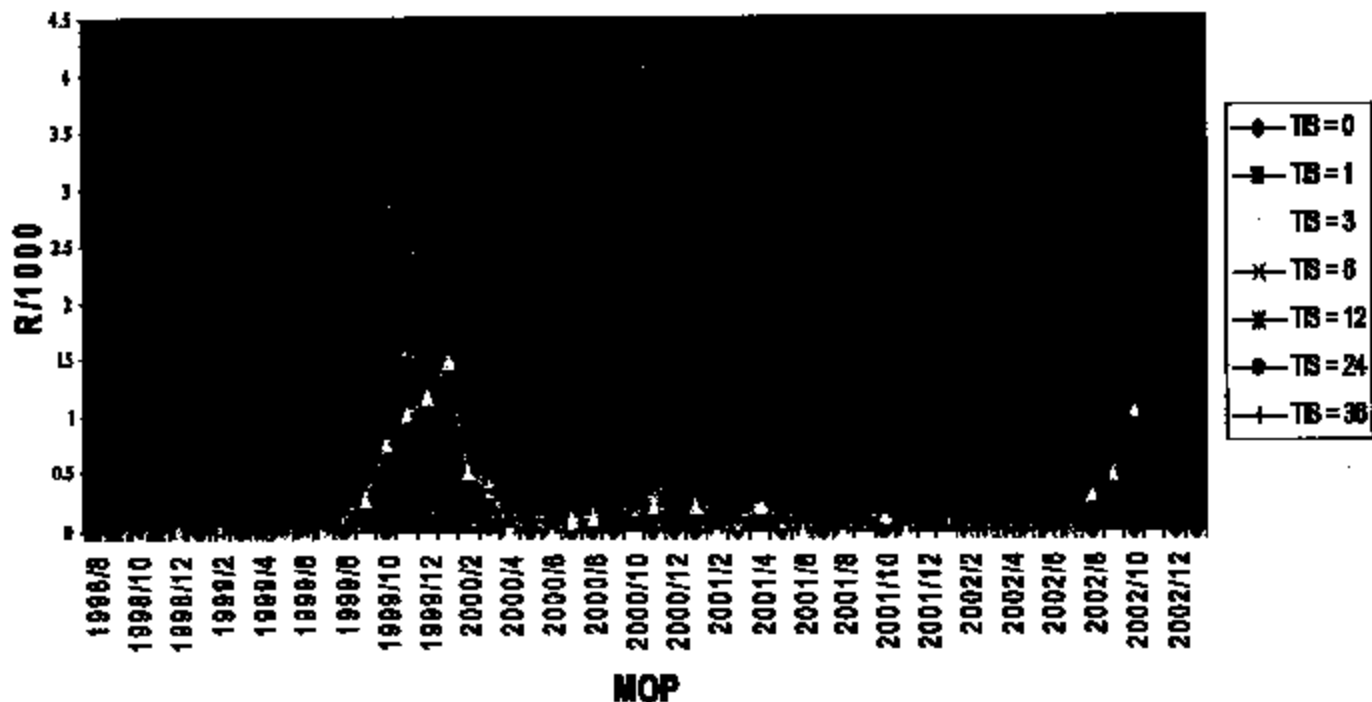


6-PANEL

VRT : Electrical	VFG:V07, V17, V77, V83	CCC: L19, G29, A85, L25, L29
Vehicle: Ranger		14018: Door Ajar Warning Switch

Filtering L19 by Striker adjust reveals the extent of R/1000 diagnosed as striker problem

Ranger Door Ajar -Striker Adjust



MOP-000-0000

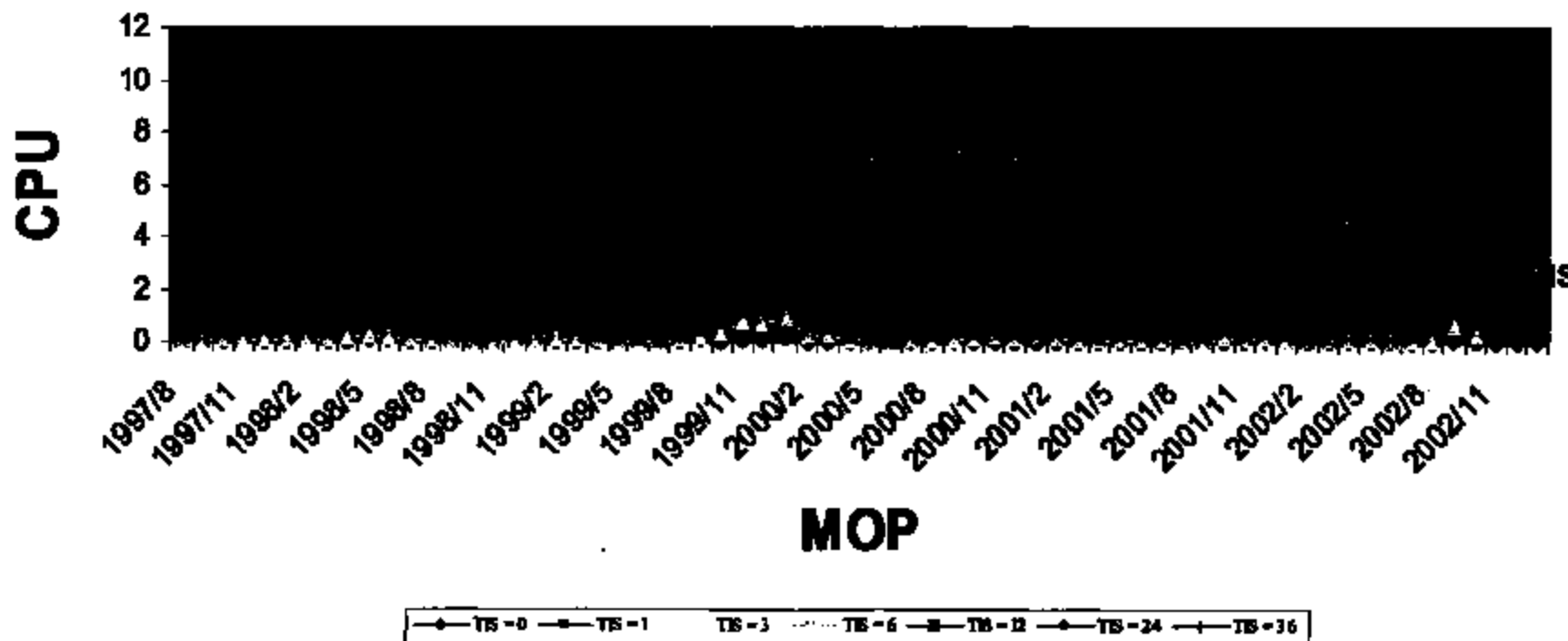


6-PANEL

VRT : Electrical	VFG:V07, V17, V77, V83	CCC: L19, G29, A85, L25, L29
Vehicle: Ranger	14018: Door Ajar Warning Switch	

Ranger CPU Chart by MOP for 0 – 36 MIS:

Ranger Door Ajar CPU



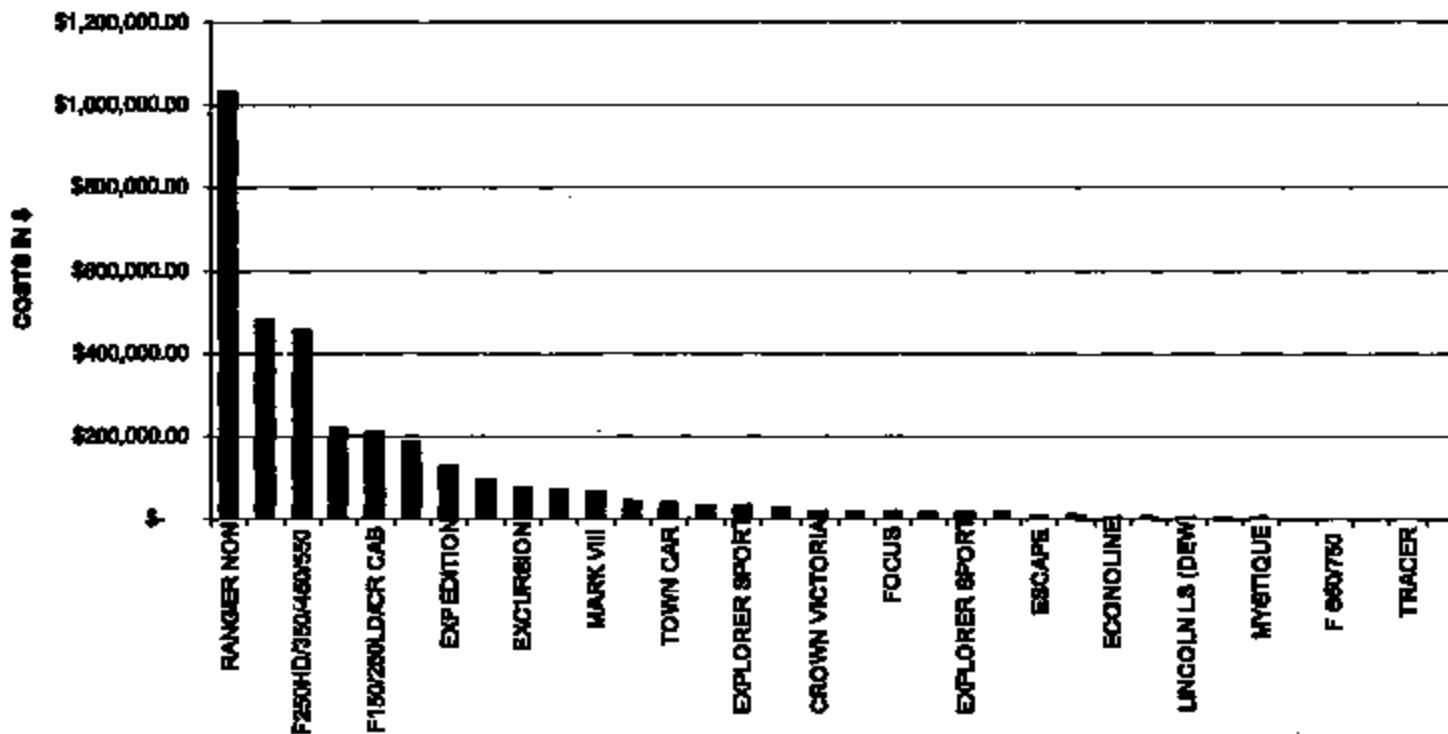
6-PANEL 600-0000



6-PANEL

VRT : Electrical	VFG:V07, V17, V77, V83	CCC: L19, G29, A85, L25, L29
Vehicle: Ranger		14018: Door Ajar Warning Switch

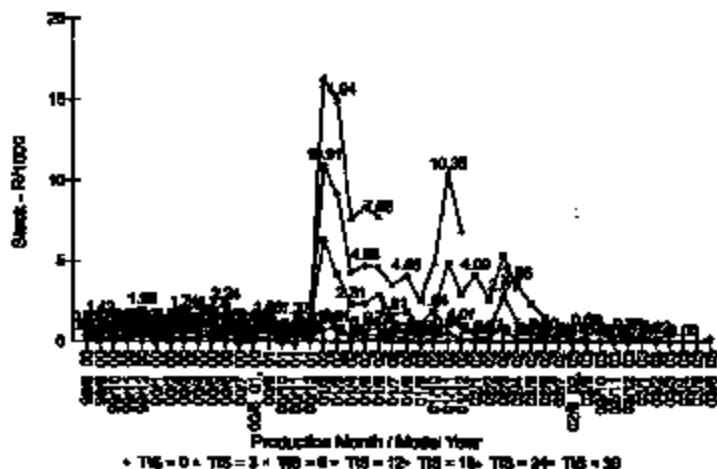
14018 CY02 COSTS PARETO
TOTAL CY02 WARRANTY \$3.34M



K000-006 4241

Pollak 2-Terminal BOO

U152 13480 (Pollak 5T< 02MY, 2T=02MY+)



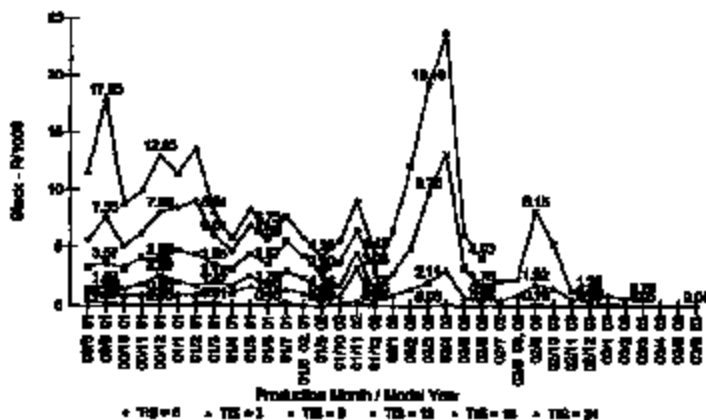
TB Reported = 0,3,6,12,18,24,30

L221 (Pollak 2T=02MY)



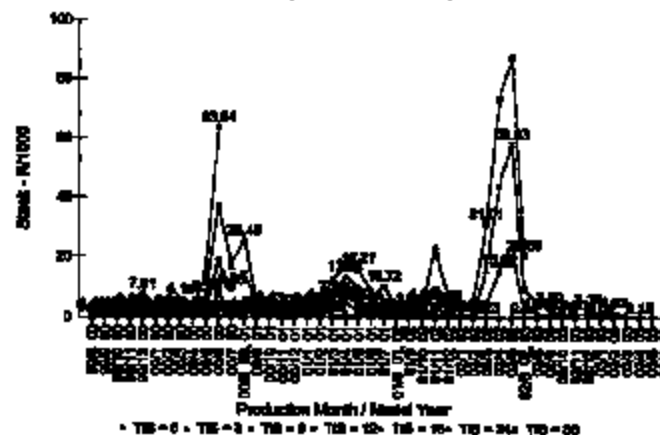
TB Reported = 0,3,6

O100 (Pollak 2T=02MY)



TB Reported = 0,3,6,12,18,24

W120 (Pollak 2T=02MY)



TB Reported = 0,3,6,12,18,24,30

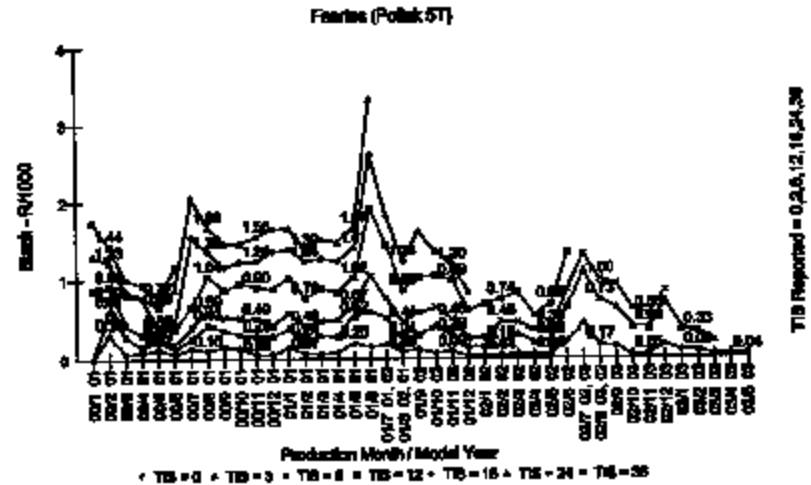
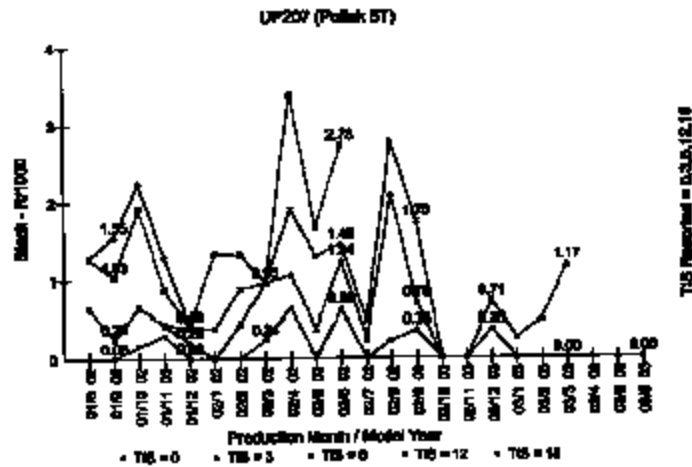
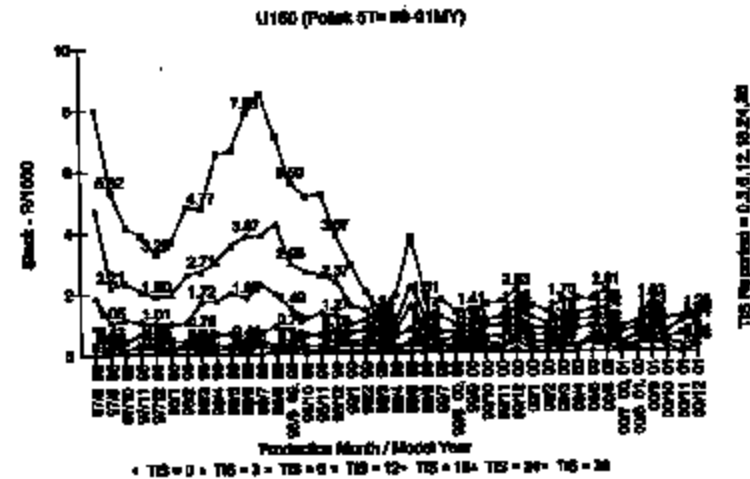
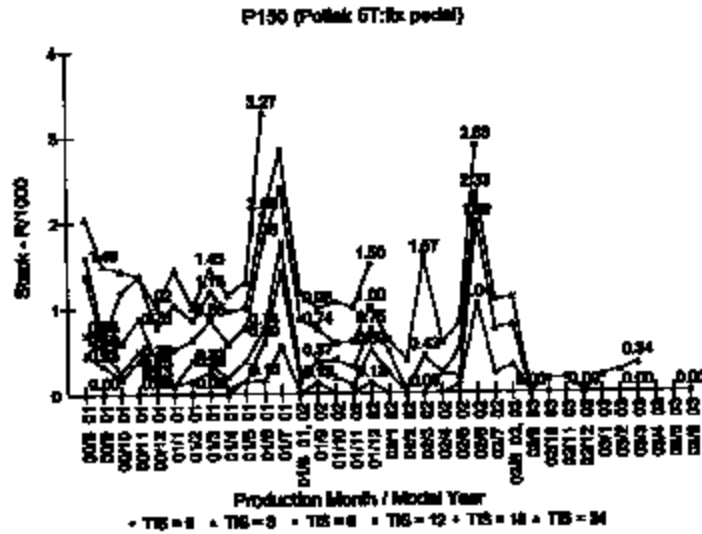
1023-026 4042

2Sep103

MSAVAG10

1

Pollak 5-Terminal BOO

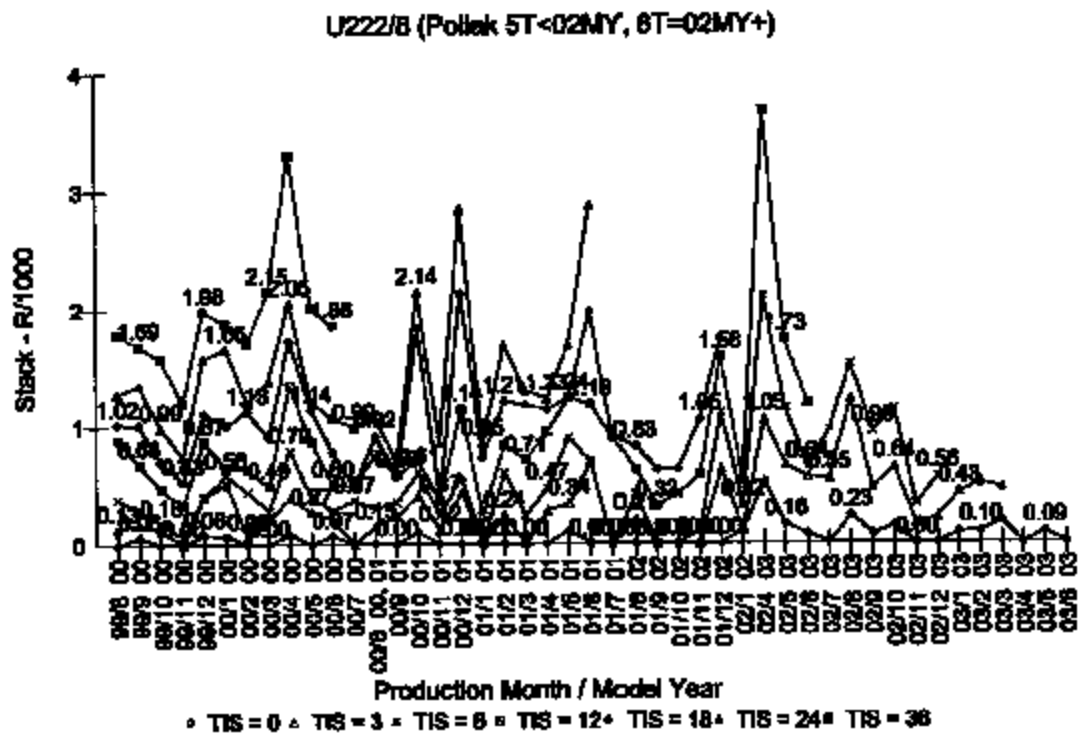


MO3-000 4543

2Sept03

MSAVAG10

Pollak 6-Terminal BOO



Design Changes to Reduce Pollak's 2 terminal BOO Warranty

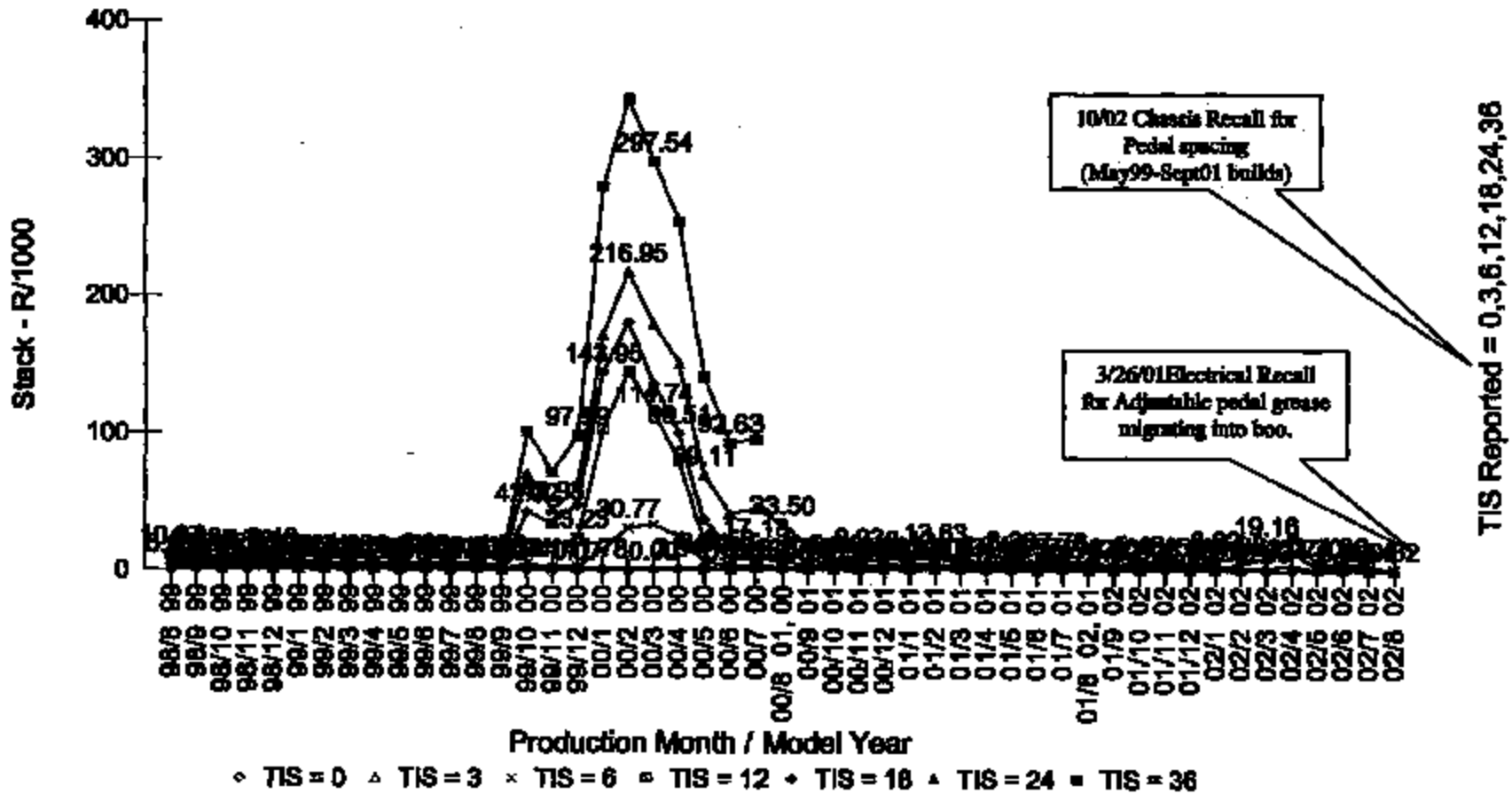
Pollak 2 Terminal Switch	Customer /Tech	Field Analysis	Switch Design Changes	System Changes
D186	Lts On & Park Shift Interlock	- Field returns show no problem found - Pedal box lash & wiring issues	-Change the <u>switch actuation range</u> (upwards) to compensate for system interaction. (C11470585; ETA NOV 03) *- Change to stronger spring within switch to counter pedal weight (Testing req'd: DPG Vehicle testing, component testing, and fleet testing (accelerated life); ETA Jan04cy).	-Hi flex wire adopted to prevent wiring breakage. -Chassis & Switches developing System FMEA: cascade SC's to all suppliers
W126/ V229	Lts On	- Field returns show no problem found - W126 rod is major contributor to lts on	See above	- V229 improved robust pedal box & booster rod changed. - Wiring TBD (New supplier) - Chassis & Switches developing System FMEA: cascade SC's to all suppliers
U152	Lts On & Park Shift Interlock	-IVD vehicles predominantly. -Also 03MY not trending like 02MY.	See above	- Wiring sheathing on 03MY and takeout length reqs revision- identified . - Redundant Speed deact switch changes @ J1 to address adj IVD vehicle problem with Lts on. - Chassis & Switches developing System FMEA: cascade SC's to all suppliers
U231	Lts On	TBD- Problem reported last week (Jun21)	See above	-Hi flex wire under review (3/10 claims). - Chassis & Switches developing System FMEA: cascade SC's to all suppliers

Design Changes to Reduce Pollak's 5&6 terminal BOO Warranty

Polak 5&6 Terminal Switch	Customer /Tech	Field Analysis	Switch Design Changes	System Changes
U222/228	Lis On & Park Shift Interlock	- Field returns show no problem found	- Added fine silver to low current contacts and deleted a set of contacts for improved closing forces and cost save. (CR 11433100 ETA 04MY J1) -Cross bar contacts to tolerate potential contamination.	TBD
P221	Lis On	Low R's	-Same as above	- HI flex under review with systems engineering.
UP207	Lis On & Park Shift Interlock	Low R's	Low R's	- HI flex wire being considered - Module/system operating below minimum current on select vehicles.
P150	Park Shift Interlock	Low R's	Low R's	- HI flex wire being considered. - Module/system operating below minimum current on select vehicles.

Pollak 2T 00-01MY Total BOO

D186 Total BOO

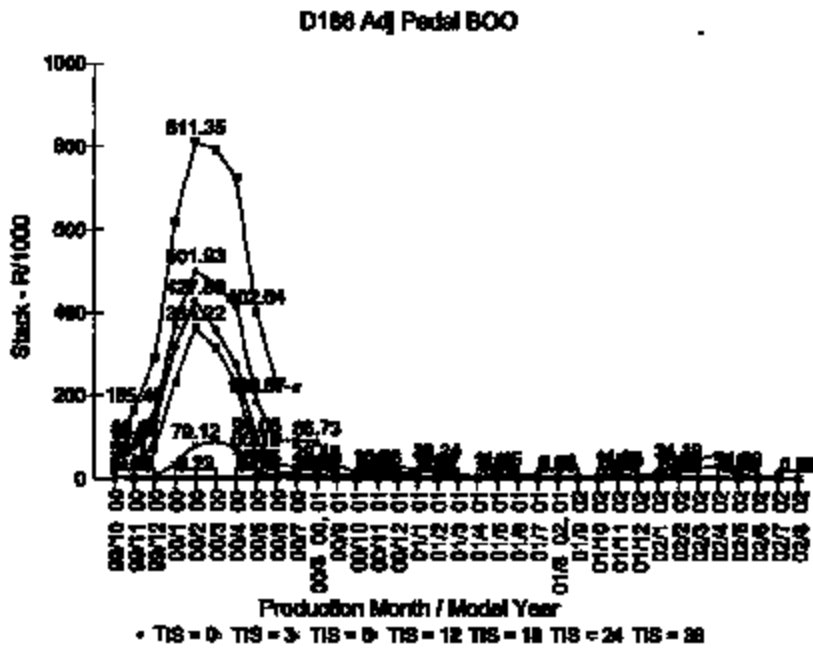


1757 989-0301

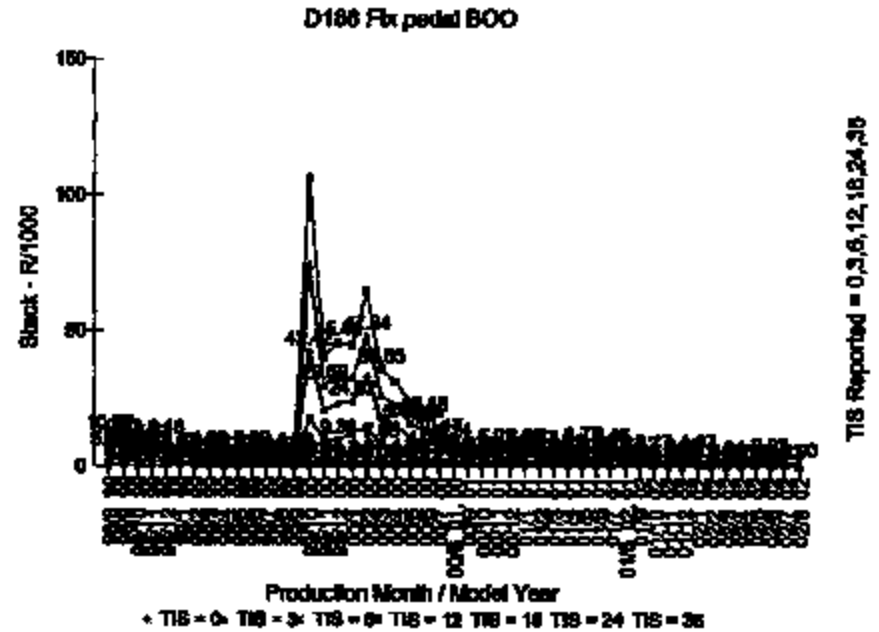
16Sept03

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Pollak 2T- 00-01MY D186 (*pedal deact)



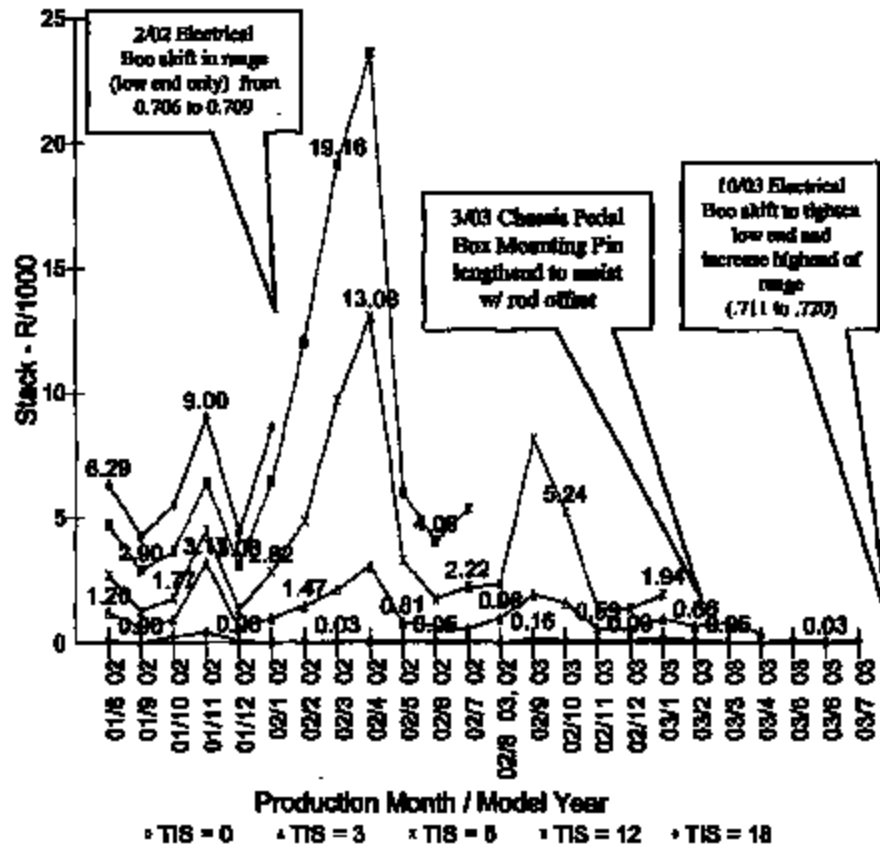
TIS Reported = 0,3,6,12,18,24,30



TIS Reported = 0,3,6,12,18,24,30

Pollak 2T- 02-03MY D186 (*pedal deact)

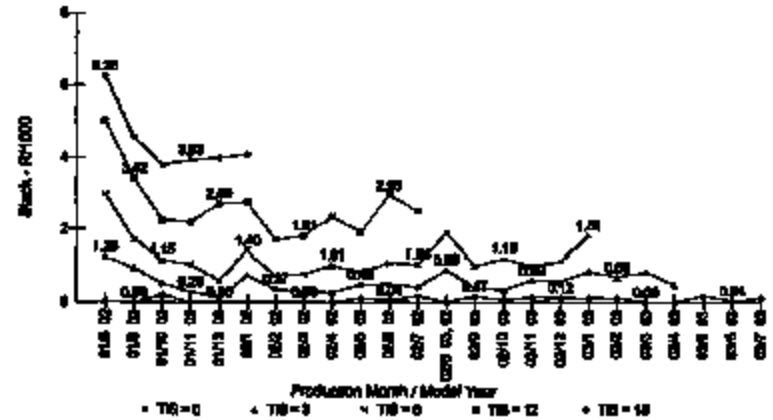
D186 Q2-03MY Total BOO



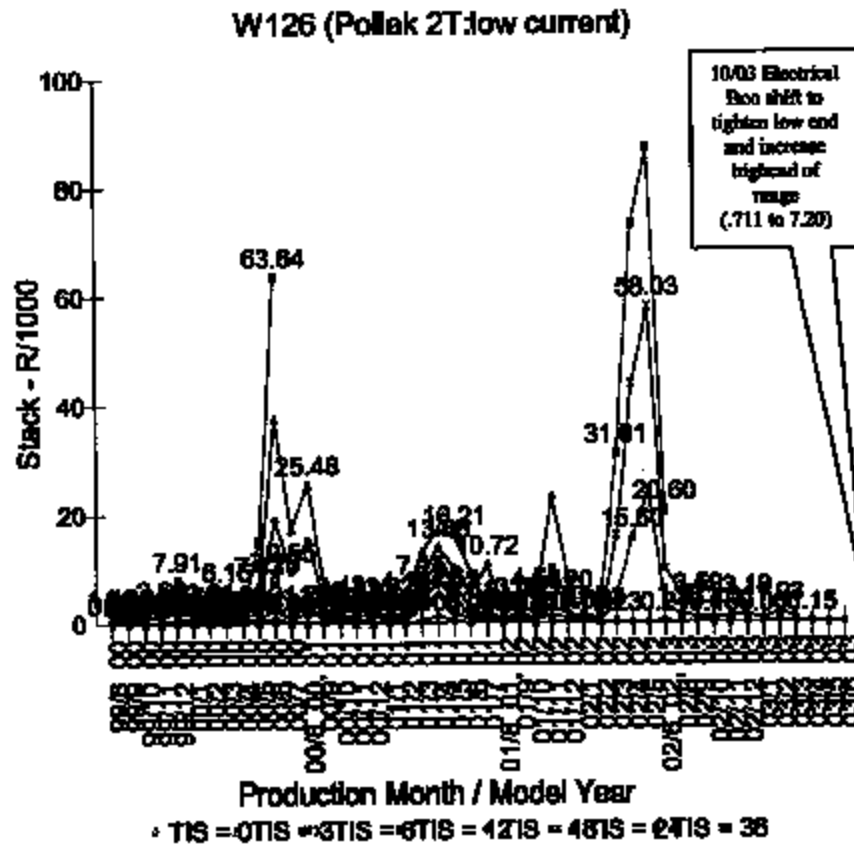
D186 Adj Pedal BOO (02-03MY)



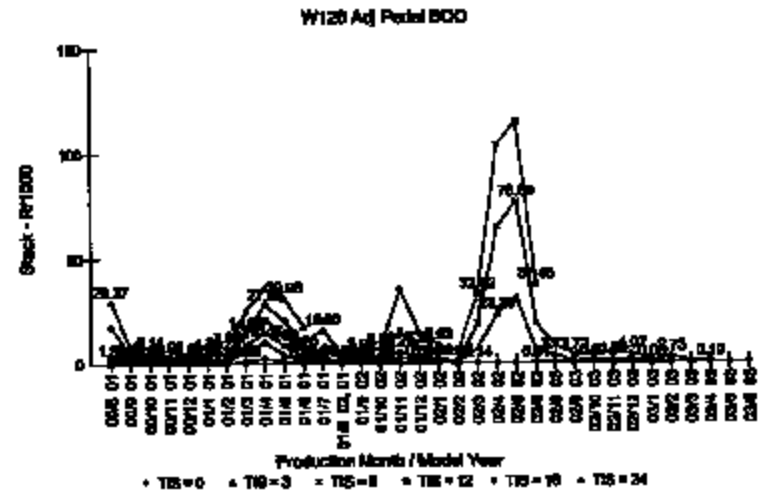
D186 Fx Pedal (02-03MY)



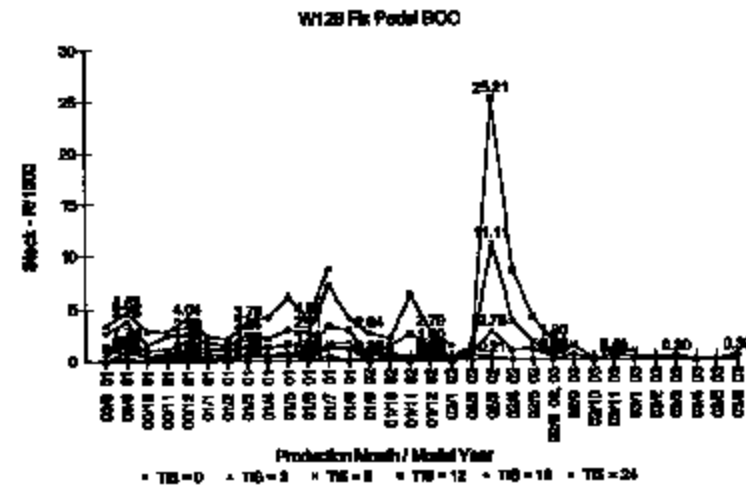
Pollak 2T- W126 (IVD in 02MY)



TIS Reported = 0,3,6,12,16,24,36



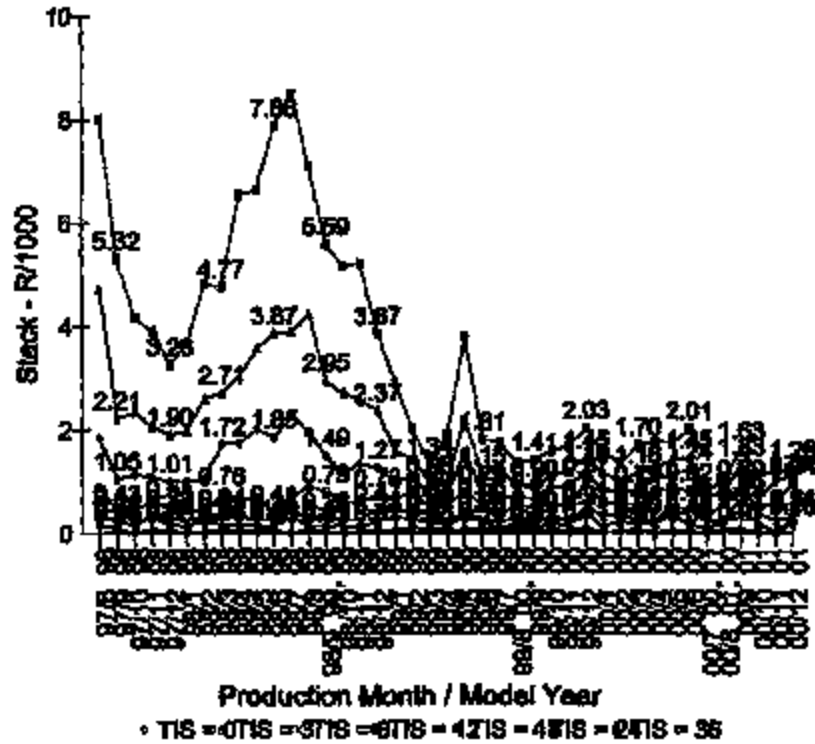
TIS Reported = 0,3,6,12,16,24



TIS Reported = 0,3,6,12,16,24

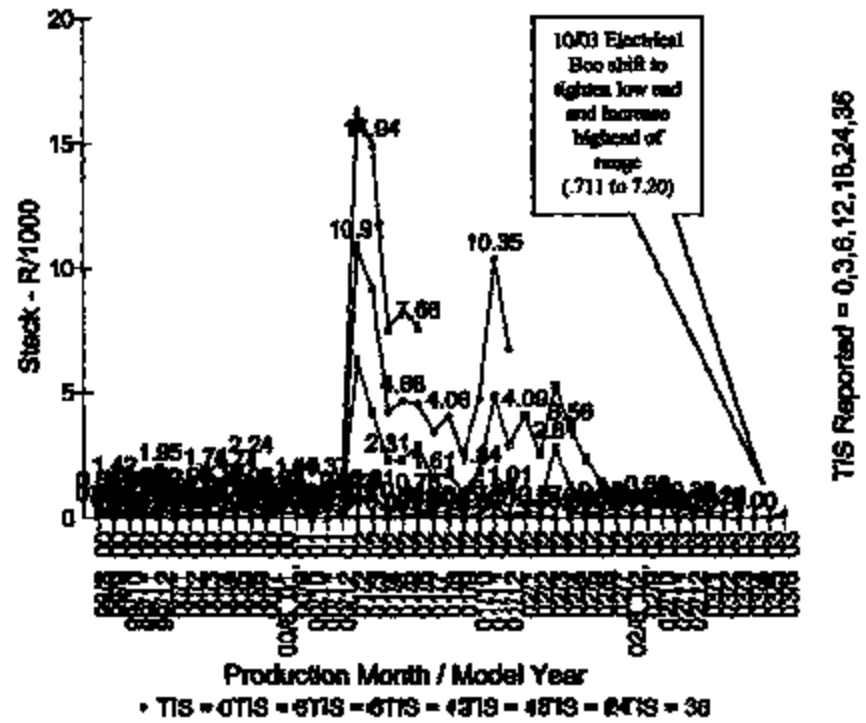
Pollak 5&2T- U150/2 Total BOO

U150 (Pollak 5T= 99-01MY)



TIS Reported = 0,3,6,12,18,24,36

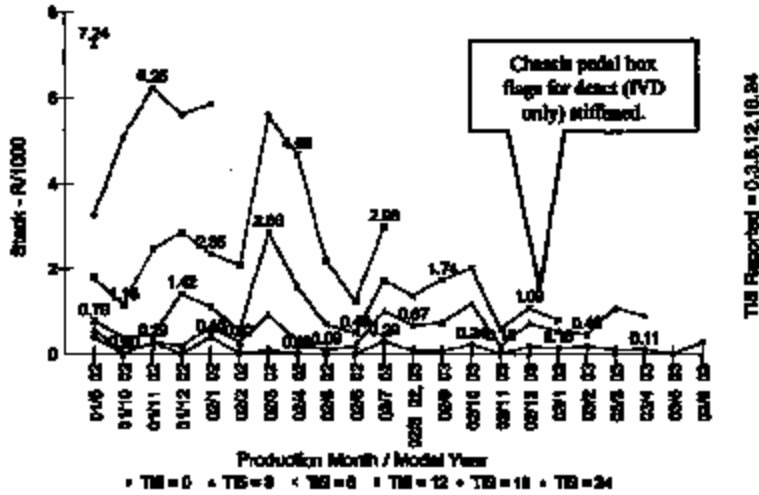
U152 13480 (Pollak 5T < 02MY, 2T = 02MY+)



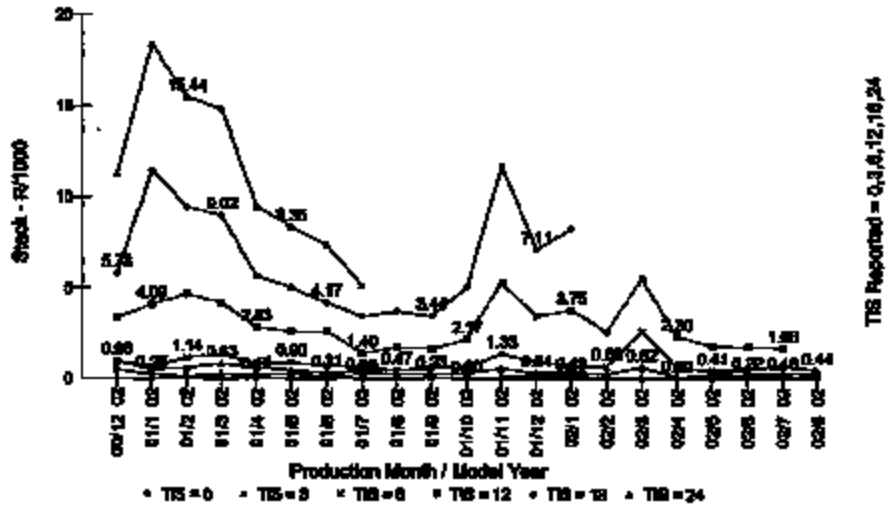
TIS Reported = 0,3,6,12,18,24,36

Pollak 2T- U152 (*pedal deact on IVD/adj)

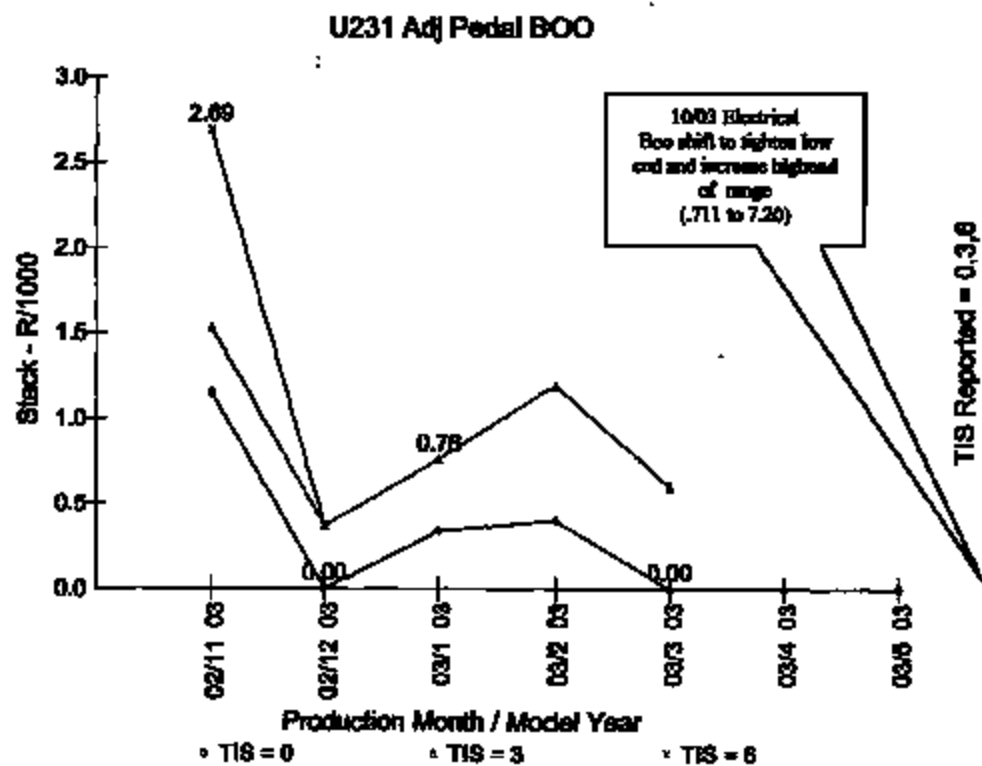
U152 02MY Adj Pedal BOC



U152 02MY Fix pedal BOC

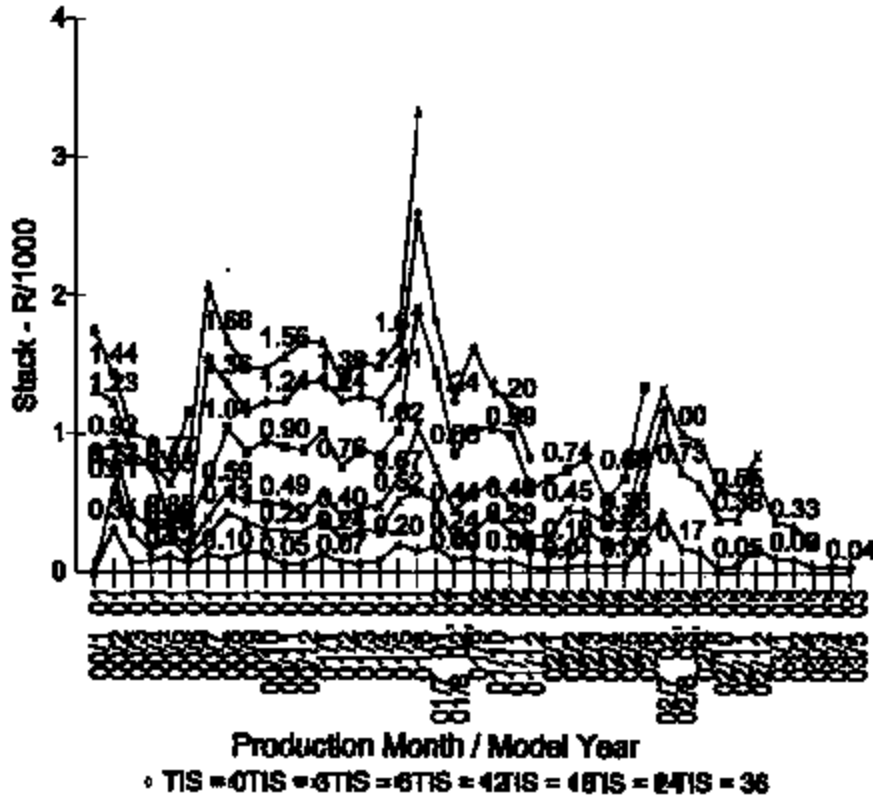


Pollak 2T- U231 (*pedal deact on IVD option)



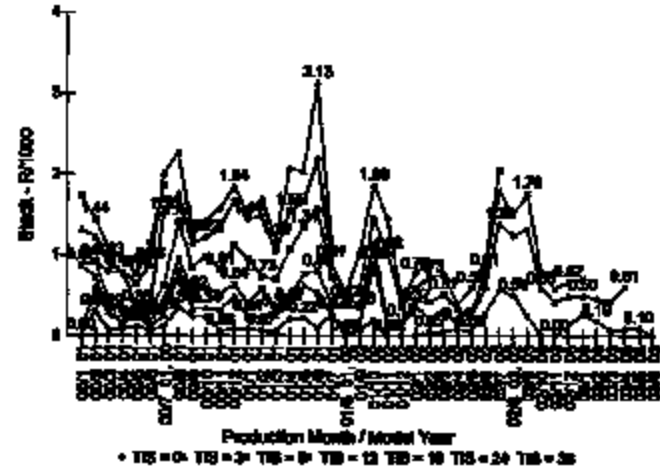
Pollak 5T- F series

Fseries (Pollak 5T)



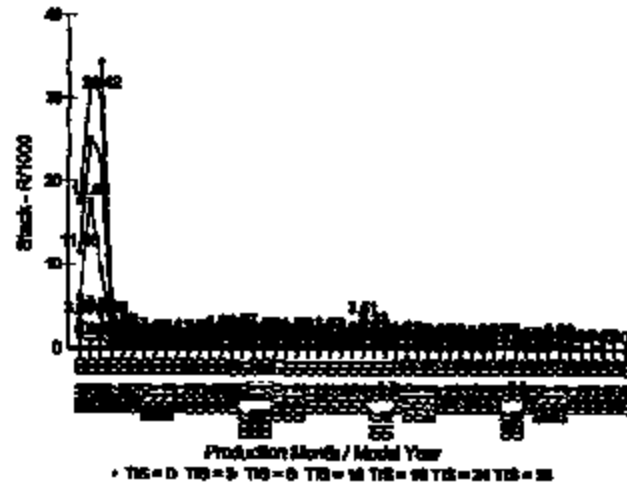
TIS Reported = 0,3,6,12,16,24,36

Fseries Adj Pedit BOO



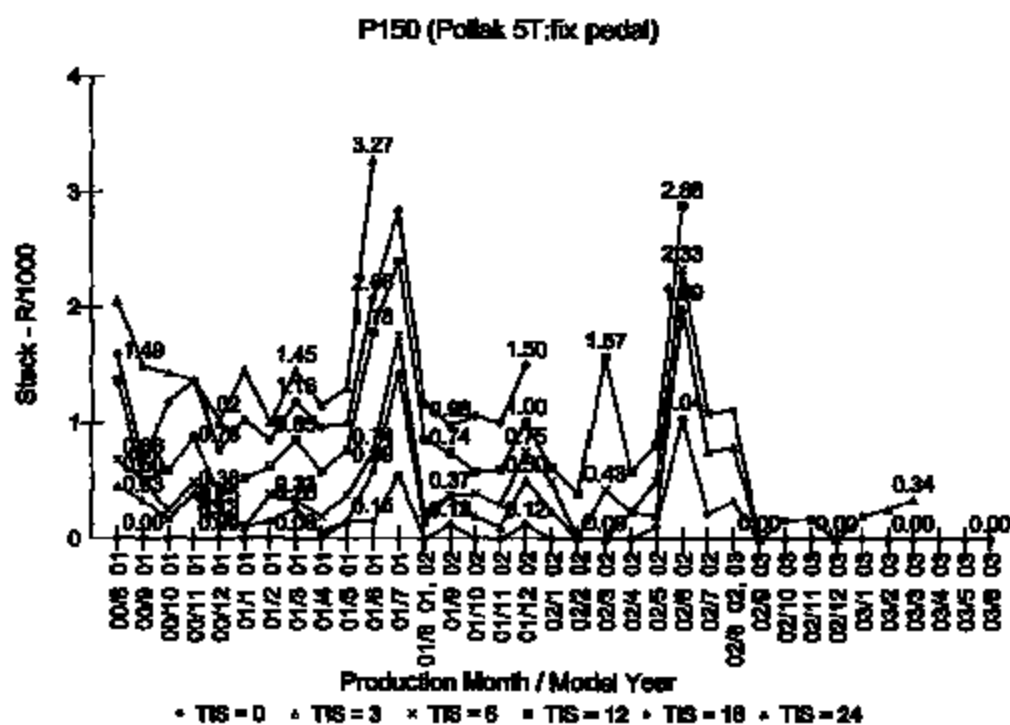
TIS Reported = 0,3,6,12,16,24,36

Fseries Fx Pedit BOO

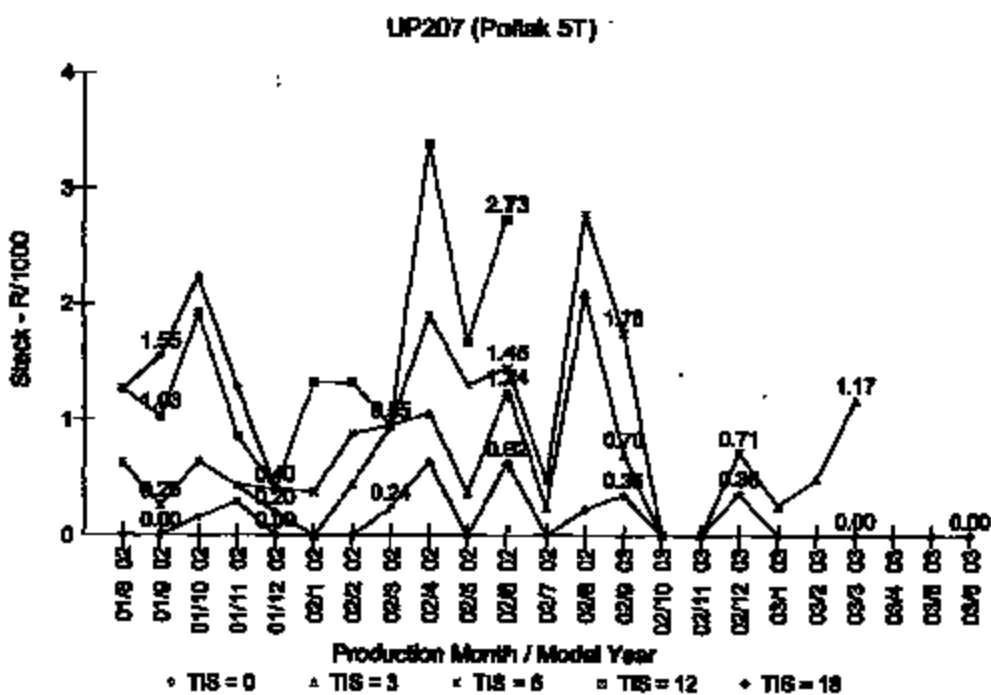


TIS Reported = 0,3,6,12,16,24,36

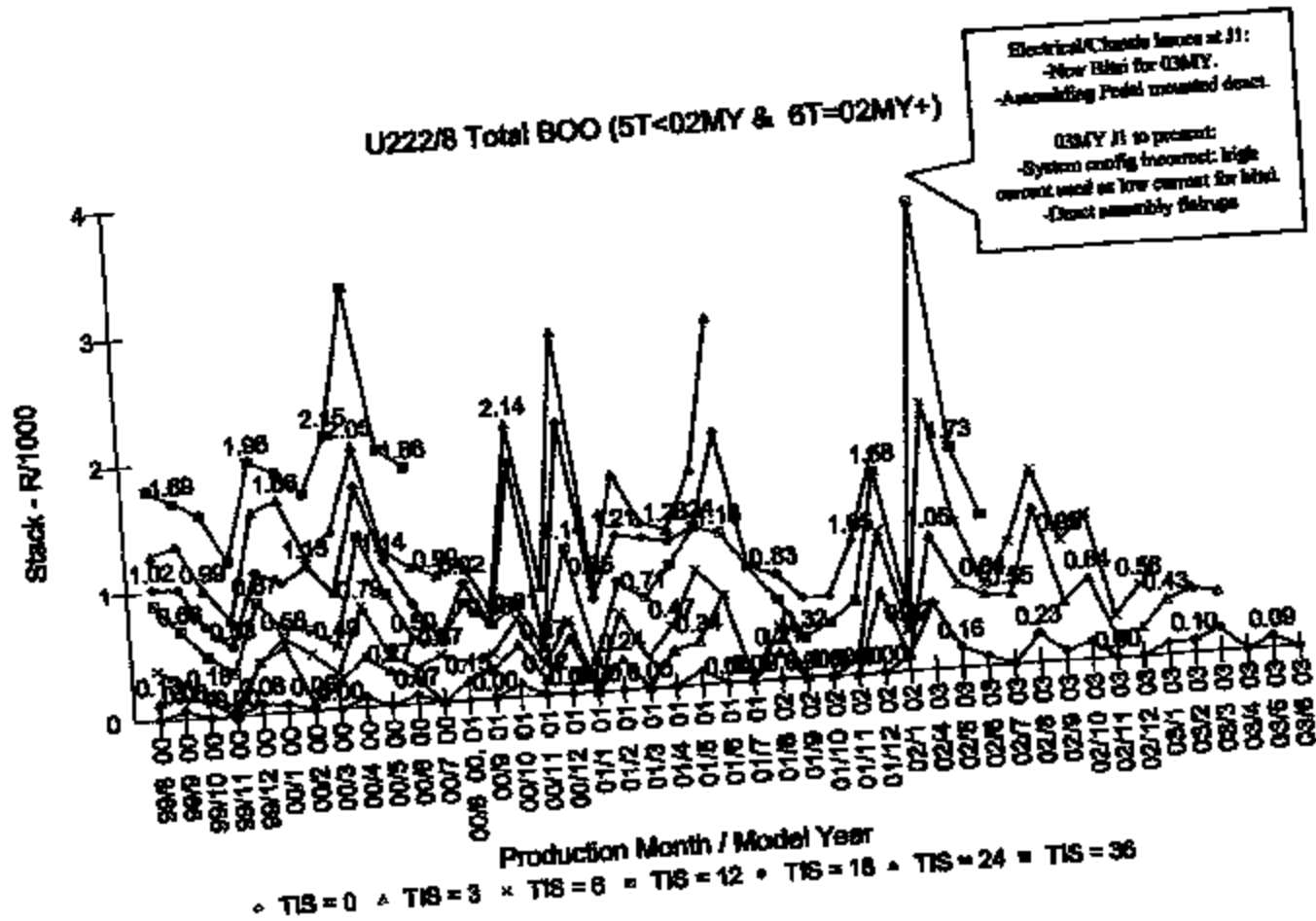
Pollak 5T- P150 (Fix pedal)



Pollak 5T- U/P207 (Fix pedal)



Pollak 6T- U222/8 (Adj pedal; *pedal deact)



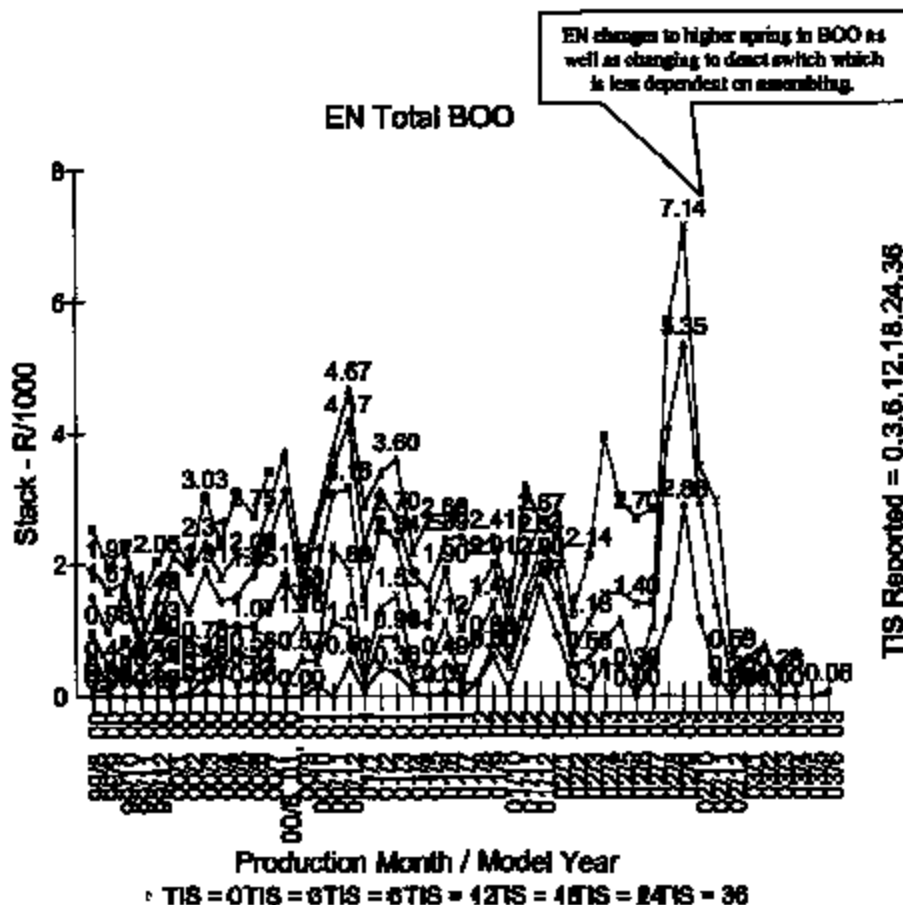
TIS Reported = 0,3,6,12,16,24,36

FORM 800-330A

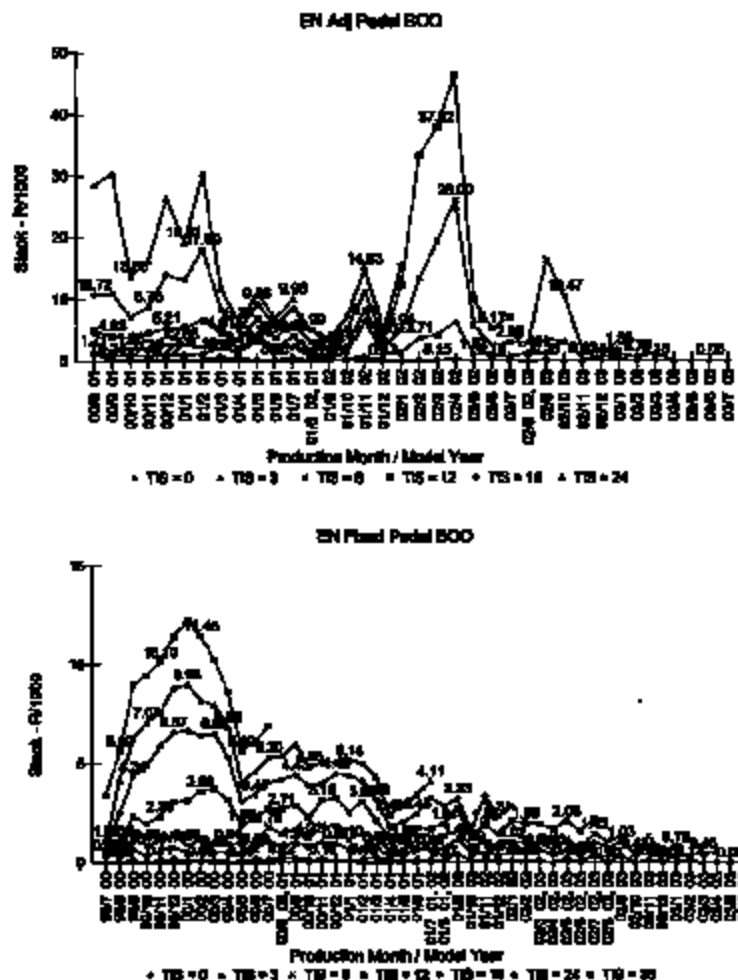
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Littelfuse- EN114 (*pedal deact)



TIS Reported = 0,3,5,12,18,24,36

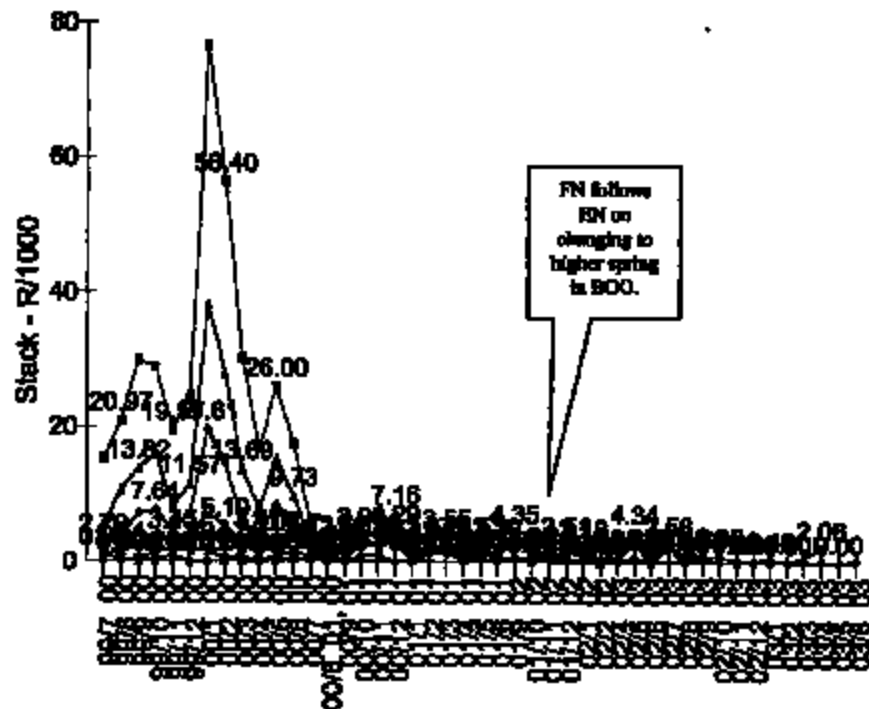


TIS Reported = 0,3,5,12,18,24

TIS Reported = 0,3,5,12,18,24,30

Littelfuse- FN145 (*pedal deact)

FN Total BOO

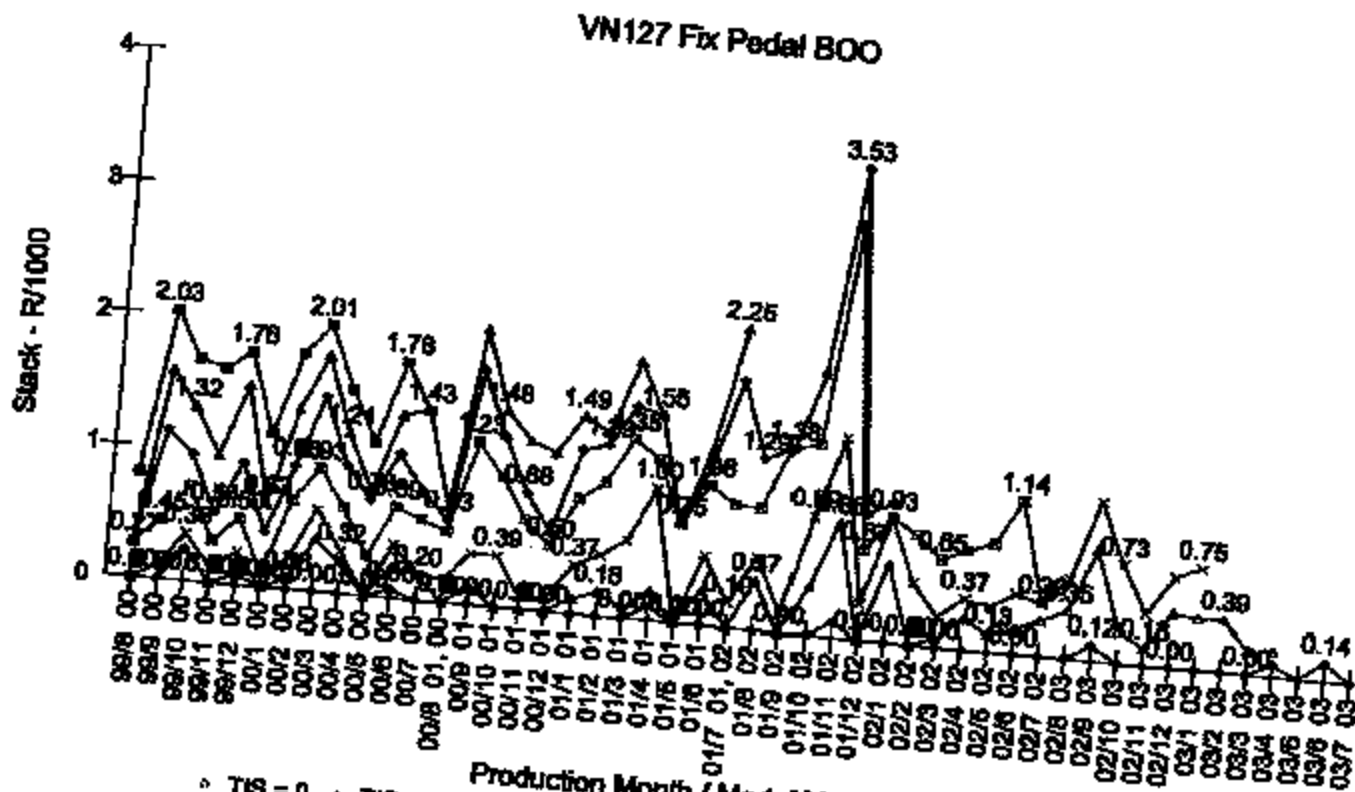


TIS Reported = 0,3,6,12,18,24,36

- Note: Adjustable pedal and fix pedal cannot be distinguished due to option pkg – not in system

Production Month / Model Year
 • TIS = 0TIS = 3TIS = 6TIS = 9TIS = 12TIS = 15TIS = 18TIS = 21TIS = 36

Littelfuse- VN127 (Fix pedal)



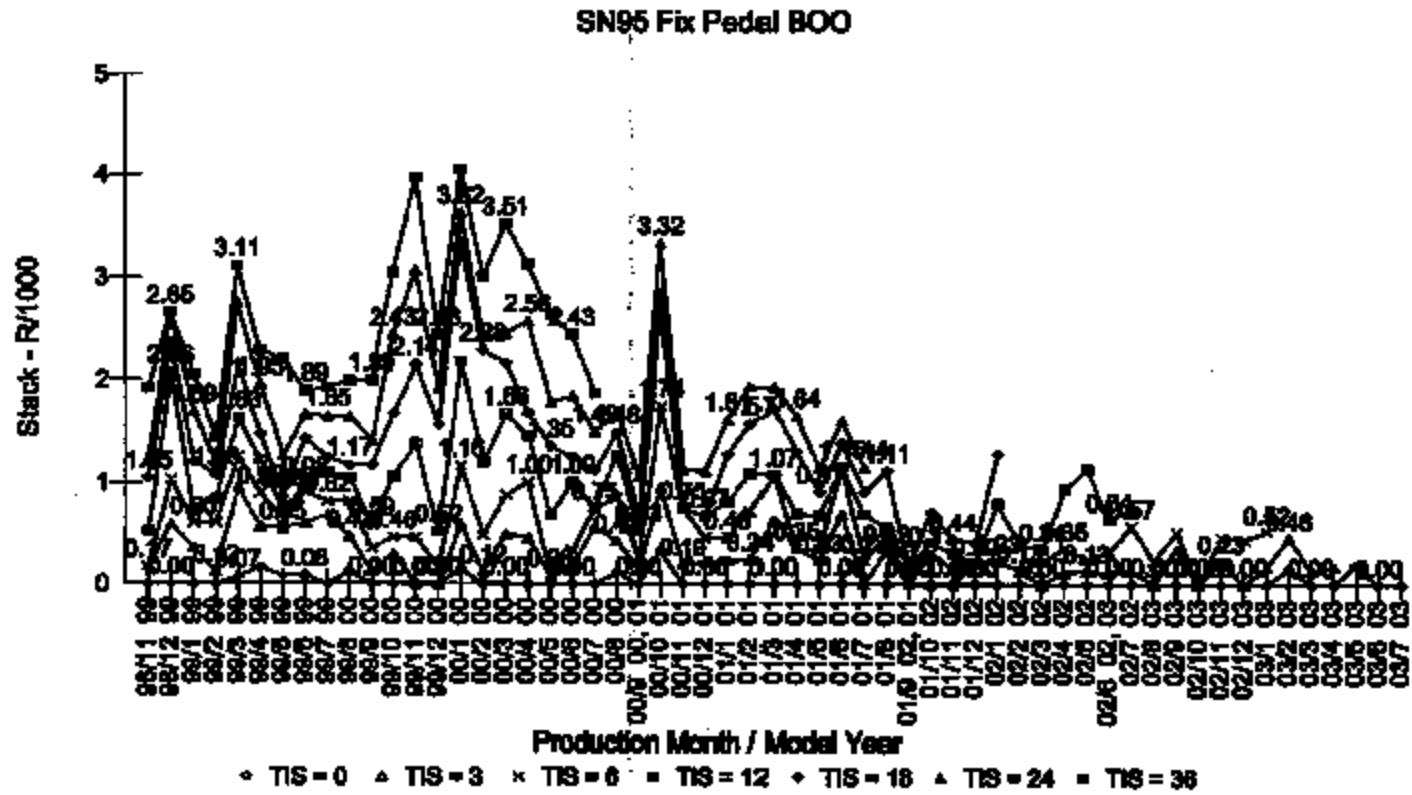
Production Month / Model Year
 TIS = 0 TIS = 3 TIS = 6 TIS = 12 TIS = 18 TIS = 24 TIS = 36

TIS Reported = 0,3,6,12,18,24,36

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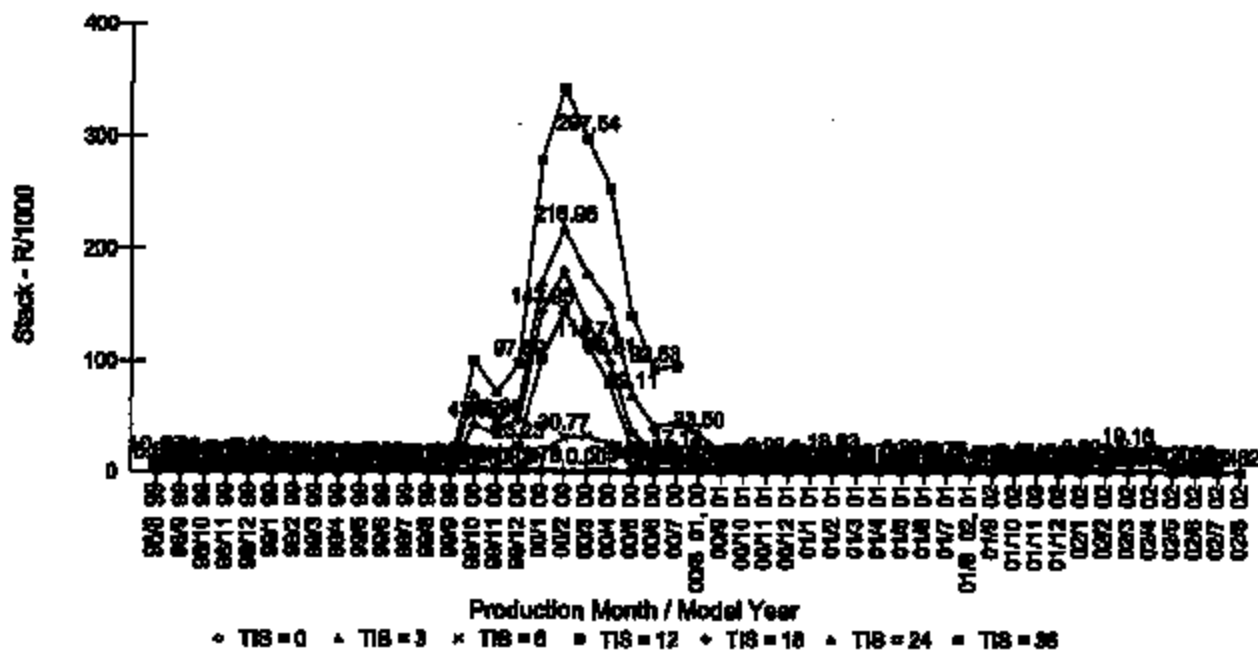
Littelfuse- SN95 (Fix pedal)



TIS Reported = 0,3,6,12,18,24,36

D186 Overview of Brake Pedal Design

D186 Total BOO

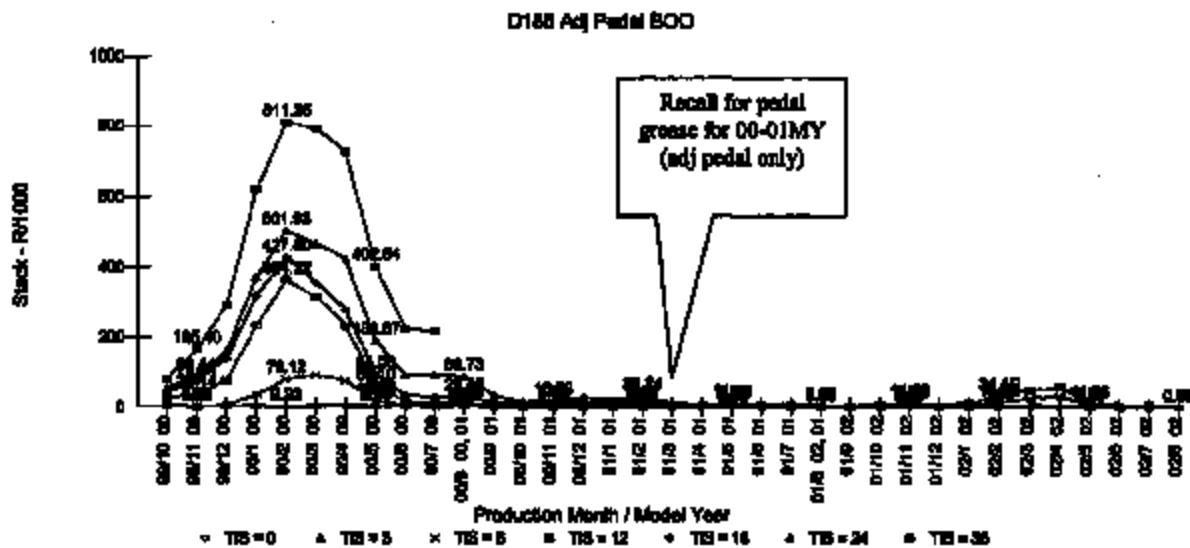


TIS Reported = 0,3,6,12,18,24,36

D186 OOMY Design Overview:

- Wiring: issues due to pkg'g constraints; wiring gets caught in steering wheel shaft; routing & retaining finalized by 01MYJ1
- Sheetmetal: (cowl) sporadically in-control potentially impacting the anchoring of brake booster and pedal box- impacting booster rod alignment to pedal box mounting pin.
- Pedal box: D186 first platform with adjustable pedal. DV testing identified known lateral lash which worsens over time. Many (38) changes occurred on the design over 2.5yrs.
- Brake booster: Wagon & Sedan booster rods are unique due to brake ratios.
- Pollak switch: First platform with 2 terminal design.

D186 Adj Pedal Design Summary



TIS Reported = 0,3,6,12,16,24,36

D186 00MY Design Evolution:

Pedal box:

- 00/1 Teleflex moves mfg from OH to IN. Also mfg change on bracket from laser cutting to hard tooling.
- 00/1 thru 00/3 Welding changes on brackets also occurred. Also, Mounting pin process change to welding.
- 00/8 Grease used on pedal spring changed to match grease used on fix pedal (RECALL: oil onto switch)
- 01/7 Change to anti-lash bushings to address lash.
- 01/11 Reduce welding on booster pin- excessive causing bon to stick
- 02/3 CMM on mig welding
- 02/11 LDM busing out of spec.
- 03/3 Mounting pin length increased based on VSA study which identified offset

Booster:

- 00/8 Wagon production stopped due to pedal ratio issue.
- 00/12 Wagon production resumes with new booster rod

Sheetmetal:

- (Cow/)&P) sporadically in-control potentially impacting booster rod alignment to pedal box mounting pin.

Pollok switch:

- 99/10 CAP&Pollak identified fixed terminal distance not matching go/no go gage resulting in lower actuation (its on)
- 00/8 J1 Fork yoke switches (mounting)
- 02/2 Plating extended to quieten the switch.
- 02/2 Low end shifted from 0.706 to 0.709.
- 03/11 Shift in range on all 2 terminal application. Also changed radius on terminal due to stress fractures.

Wiring:

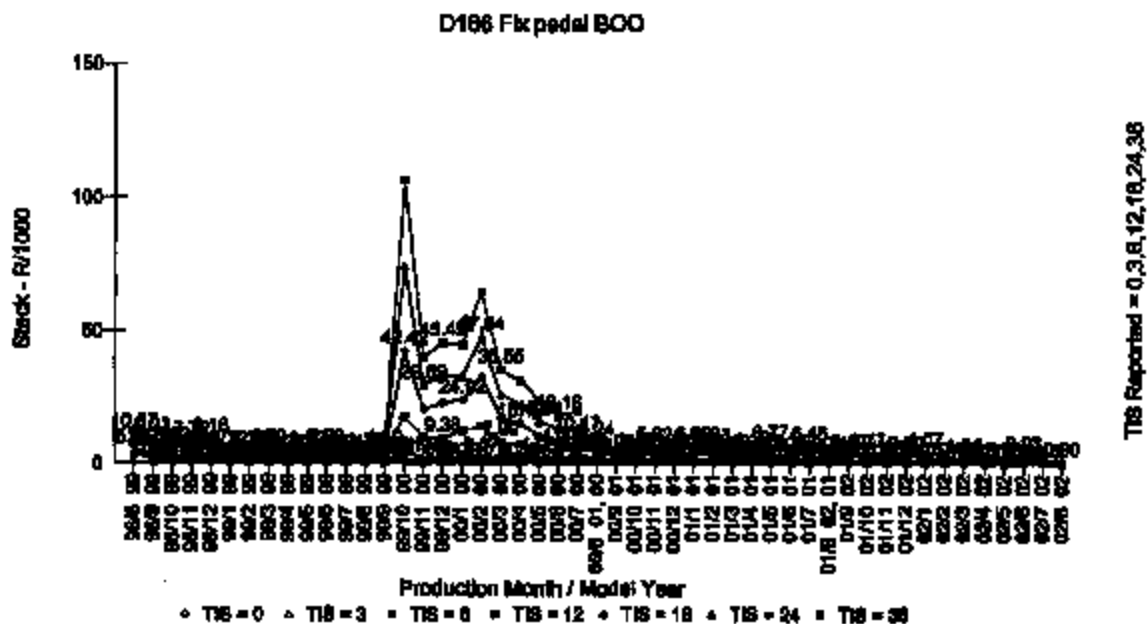
- 00/3 Wire length changed
- 00/8 Hockeystick added to assist in routing.

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D186 Fix Pedal Design Summary



D186 OOMY Design Evolution:

Pedal box:

-KSR's design changes are un disclosed

-02/11 LDM buying out of spec.

Booster:

00/8 Wagon production stopped due to pedal ratio issue.

00/12 Wagon production resumes with new booster rod

Sheetmetal:

-(Cow&IP) sporadically in-control potentially impacting booster rod alignment to pedal box mounting pin.

Pullak switch:

-99/10 CAP&Pullak id fixed terminal distance not matching go/no go gage resulting in lower actuation (its on)

-00/8 J1 Poke yoke switches (mounting)

-02/2 Plating extended to quieten the switch.

-02/2 Low end shifted from 0.706 to 0.709.

-03/11 Shift in range on all 2 terminal application. Also changed radius on terminal due to stress fractures.

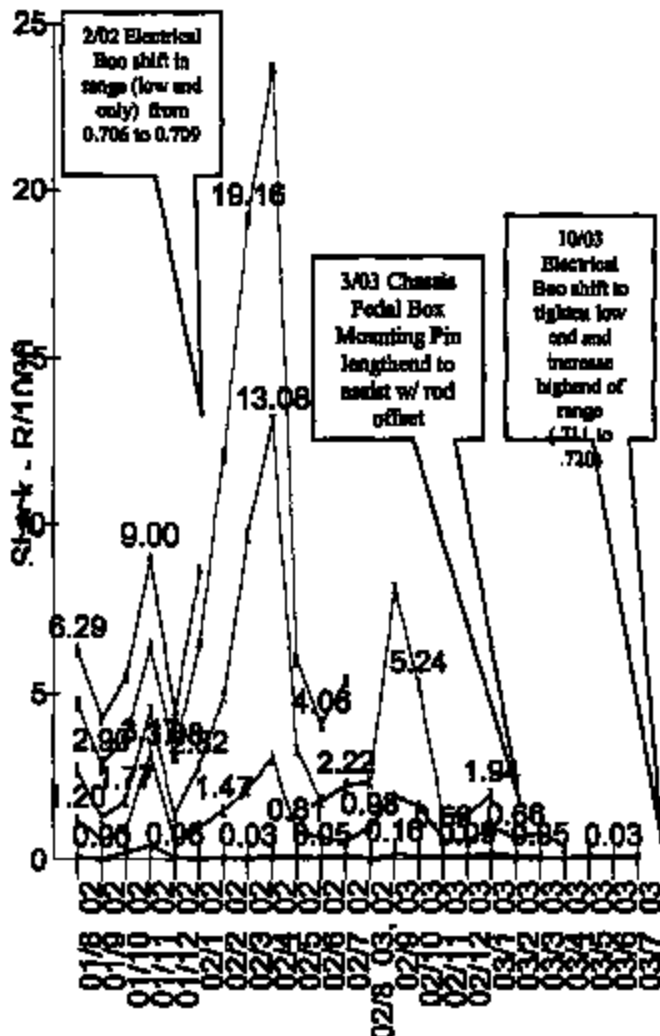
Wiring:

-00/3 Wire length changed

-00/8 Hockeystick and tie strap added to assist in routing.

D186 02-03MY BOO (*pedal deact)

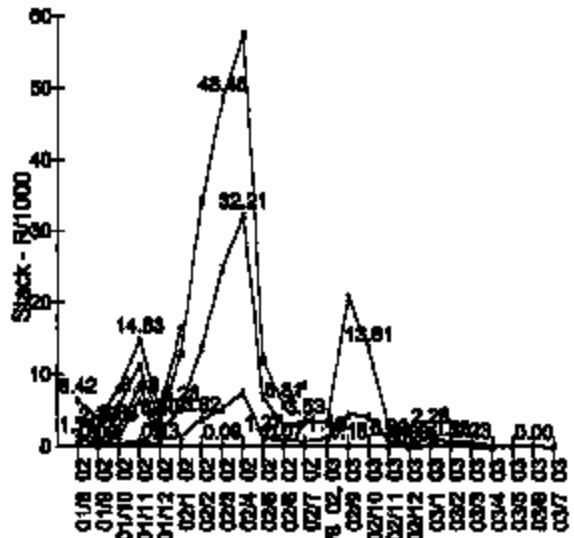
D186 02-03MY Total BOO



Production Month / Model Year
 • TIS = 0 • TIS = 3 • TIS = 6 • TIS = 12 • TIS = 18

TIS Reported = 0,3,6,12,18

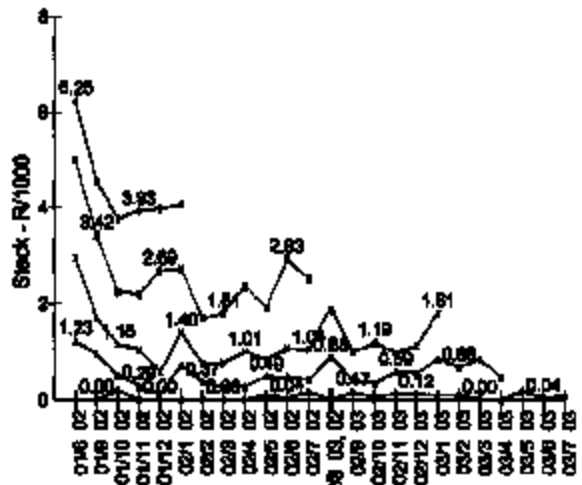
D186 Adj Pedal BOO (02-03MY)



Production Month / Model Year
 • TIS = 0 • TIS = 3 • TIS = 6 • TIS = 12 • TIS = 18

TIS Reported = 0,3,6,12,18

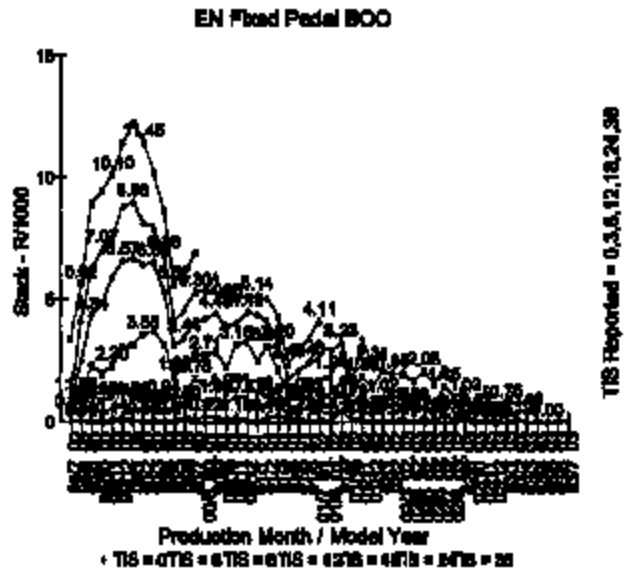
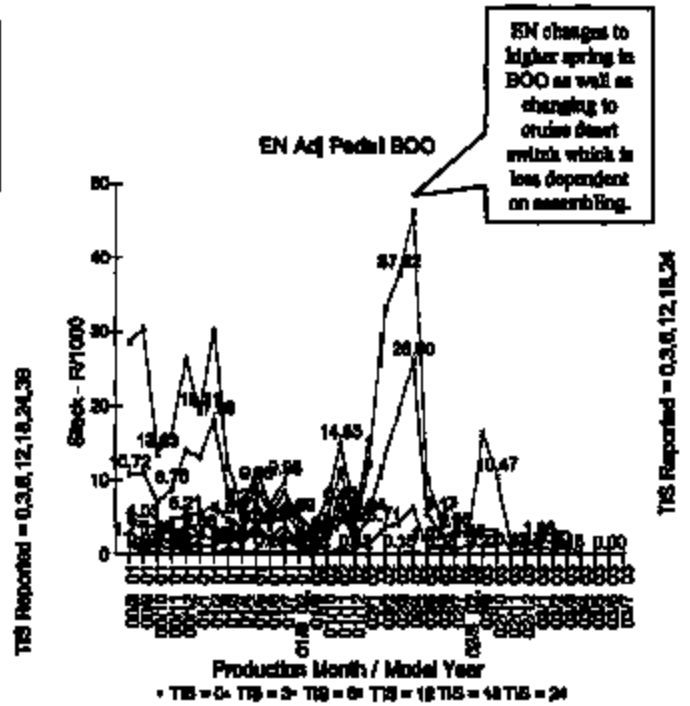
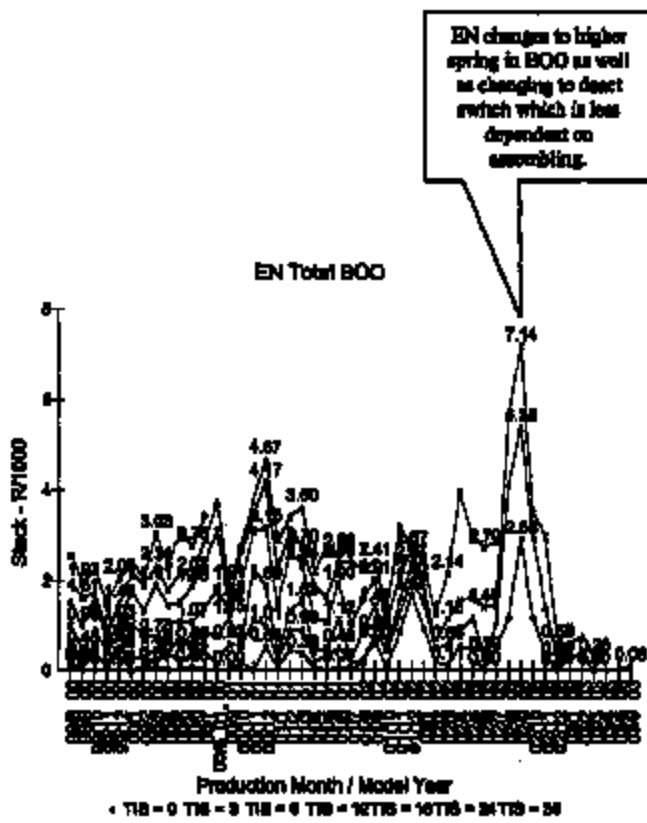
D186 Fix Pedal (02-03MY)



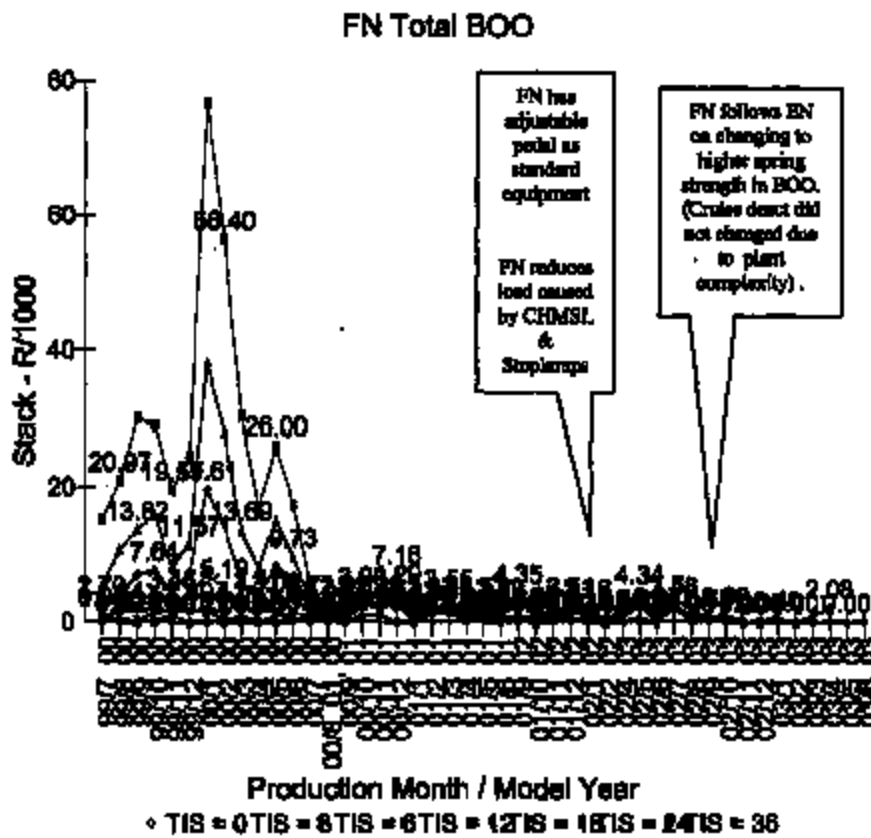
Production Month / Model Year
 • TIS = 0 • TIS = 3 • TIS = 6 • TIS = 12 • TIS = 18

TIS Reported = 0,3,6,12,18

Other platform performance (Adjustable and Fixed) with Littelfuse



Other Platform Performance (Adjustable and Fixed) with Littelfuse



TIS Reported = 0,3,6,12,18,24,36

Note:
Adjustable pedal and Fix pedal cannot be filtered due to the complexity of the 'option pkg' offered.

D186 Summary Test Results

Component testing:

- **Box pedal grease**
 - Test stand cycle testing of Pollak switch replicated field issue of switch failure when subject to oil from grease.
 - Test stand cycle testing of Littelfuse showed no failures when exposed to the grease.

Subsystem testing:

- **Testing of both switches when exposed to D186's system noise of wiring and rod offset for 400,000 cycles;**
 - The Pollak switch showed operational failures on 1 out of 6 switches. In addition, 3 of the 6 showed signs of switch housing degradation due to heat generation.
 - The Littelfuse switch had no failures.
 - Wiring robustness was also proven; high flex wire should be used on platforms with rod actuated boo switch.

In vehicle/System testing to chassis requirements:

- **Both switches were tested on 12 (02-03MY) vehicles for suitability for field and production system designs.**
 - Pollak and Littelfuse original spring strength (8.5-12lb) was too weak causing some flicker.
 - Higher spring strength (10-14.5lb) with both switches pass the chassis taillamp flicker test.
 - The field kit released the Littelfuse switch with the higher spring range.

Dimensional Stack-up Analysis of D186:

- **Multiple studies done by VSA identifying system issues. These studies use the Ford print tolerances as the basis and also estimate the capability of each supplier based on these dimensions. Some of the chassis and electrical changes this year were based on these studies.**

CHASSIS TOLERANCES

	MIN (mm)	MAX (mm)
rod id	18.23	18.28
rod id to flat	2.95	2.99
bushing	0.822	0.873
pin	14.15	14.2
Chassis System Actuated:	18.4	18.8
Chassis System when at Rest:	17.8149	17.8181

18.40-bushingmax=17.72
18.80-bushingmax=17.827
18.40-bushingmin=17.778
18.80-bushingmin=17.878
17.8149-bushingmax=18.8419
17.8181-bushingmax=17.1451
17.8149-bushingmin=18.8829
17.8181-bushingmin=17.8861

POLLAK'S 800 TOLERANCES

	5 terminal	
	MIN (mm)	MAX (mm)
Mounting Hole (14.33 \pm 0.08 tol.)	14.27	14.43
Distance of mounting hole to body (18.0 \pm 0.1)-(14.33 \pm 0.08)	-	-
Thickness of housing hole in body (1.80 \pm 0.08)		
(Component) Height of Plunger Plate (3.28 with unspecified tol of \pm 0.08)		
Height of plunger in assembly (worst and best calculations)		
Distance of body to plunger surface as assembled		
Distance from Rear tangent to plng	3	3.5

	4/5 terminal	
	MIN (mm)	MAX (mm)
Mounting Hole (14.33 \pm 0.08 tol.)	14.28	14.38
Distance of mounting hole to body (18.0 \pm 0.1)-(14.33 \pm 0.08)	4.52	4.82
Thickness of housing hole in body (1.80 \pm 0.08)	1.72	1.88
(Component) Height of Plunger Plate (3.28 with unspecified tol of \pm 0.08)	3.18	3.31
Height of plunger in assembly (worst and best calculations)	1.31	1.88
Distance of body to plunger surface as assembled	3.24	3.23
Distance from Rear tangent to plng	17.49	17.81

18.1-14.28 =4.82

18.8-14.38=4.82

	2 terminal	
	MIN (mm)	MAX (mm)
Mounting Hole (14.33 \pm 0.08 tol.)	14.28	14.38
Distance of mounting hole to body (18.0 \pm 0.1)-(14.33 \pm 0.08)	4.52	4.82
Thickness of housing hole in body (1.80 \pm 0.08)	1.72	1.88
(Component) Height of Plunger Plate (3.28 \pm 0.08)	3.2	3.3
Height of plunger in assembly (worst and best calculations)	1.32	1.88
Distance of body to plunger surface as assembled	3.2	3.24
Distance from Rear tangent to plng	17.48	17.82

Mounting Pin to Switch relationship:

-Actuation position= pin rests nearest tangent point of mounting hole due to booster rod moving rearward in vehicle
 -For solution the following compares the chassis system to switch actuation based on rear tangent from mounting pin.

Worst case conditions (no solution)

	2 terminal	4/6 terminal	5 terminal
Large distance of hole to body	4.62		
Short plunger height	1.32		
Fwd tangent to plunger			3.5
Small switch Diameter	14.26		14.27
add Fwd tangent to plunger	3.68		3.5
Total	17.83		17.77
If chassis system (less the minimum bushing)=	17.72-17.927	Problem (gap 0.11)	OK? (gap 0.08)
If chassis system (less the maximum bushing) =	17.77-17.978	OK? (gap 0.08)	Good-preloaded

Nominal

	2 terminal	4/6 terminal	5 terminal
Short distance of hole to body	4.67		
Tall plunger height	1.49		
Fwd tangent to plunger	3.18		3
Large switch Diameter	14.41		14.43
add Fwd tangent to plunger	3.18		3
Total	17.93		17.43
If chassis system (less the minimum bushing)=	17.72-17.927	OK-preloaded	OK-preloaded
If chassis system (less the maximum bushing)=	17.77-17.978	OK-preloaded	OK preloaded

Best Case conditions (Preloading)

	2 terminal	4/6 terminal	5 terminal
Short distance of hole to body	4.67		
Tall plunger height	1.49		
Fwd tangent to plunger	3.18		3
Large switch Diameter	14.41		14.43
add Fwd tangent to plunger	3.18		3
Total	17.93		17.43
If chassis system (less the minimum bushing)=	17.72-17.927	OK-preloaded	OK-preloaded
If chassis system (less the maximum bushing)=	17.77-17.978	OK-preloaded	OK preloaded

NOTE: Poltek print id as shipped actuation= 17.93-18.34

Question what is the preloading range?

-Rest position=pin rests against furthest tangent of mounting holes

Worst case conditions (actuation)

	2/3/4 terminal	5 terminal
Short distance of hole to body	4.67	
Tall plunger height	1.49	
Fwd tangent to plunger	3.18	3
Large switch Diameter	14.41	14.43
add Fwd tangent to plunger	3.18	3
Total	17.93	17.43
If chassis system (less the minimum bushing)=	16.9419-17.14851	OK no lbs
If chassis system (less the maximum bushing) =	16.9928-17.0991	OK no lbs

NOTE: Poltek print id as shipped at rest= 17.27-17.78

Mounting hole location (Fwd and rear tangent)
 Body thickness tol w/ respect to mounting hole
 Plunger height
 Plunger stop
 Multiplier location to Set

	2i	6i	8i

Littelfuse 800

CHASSIS TOLERANCES		
	MIN (mm)	MAX (mm)
rod id	18.23	18.25
rod id to fist	2.65	2.66
bushing	0.822	0.873
pin	14.16	14.2
Chassis System Actuator:		
	18.4	18.6
Chassis System when at Rest:		
	17.8148	17.8181

18.40-bushingmax=17.72
18.80-bushingmax=17.827
18.40-bushingmin=17.778
18.80-bushingmin=17.878
17.8148-bushingmax=18.9419
17.8181-bushingmax=17.1481
17.8148-bushingmin=18.9829
17.8181-bushingmin=17.0881

LITTELFUSE 800 TOLERANCES		
	MIN (mm)	MAX (mm)
Mounting Hole	14.2484	14.3784
Distance from Front tangent to pin	3.8788	3.9828

Mounting Pin to Switch relationship:

- Adjustable position= pin rests against tangent point of mounting hole due to booster rod moving rearward in vehicle
- For adjustment the following compares the chassis system to switch actuation based on rear tangent from mounting pin.

Worst case conditions (no adjustment)

Small switch Diameter		
add Pin to tangent to pin		
	MIN (mm)	MAX (mm)
		14.2484
		3.8788
	Total	17.888
If chassis system (use the minimum bushing)=	17.72-17.827	OK preloaded by 0.1
If chassis system (use the maximum bushing)=	17.77-17.878	OK preloaded by 0.1

Real Case conditions (no adjust)

Large switch Diameter		
add Pin to tangent to pin		
	MIN (mm)	MAX (mm)
		14.3784
		3.9828
	Total	17.728
If chassis system (use the minimum bushing)=	17.72-17.827	OK
If chassis system (use the maximum bushing)=	17.77-17.878	OK-preloaded by 0.05

NOTE: print life adjustment= 17.83-18.84

Question what is the preloading range?

- Rest position= pin rests against furthest tangent of mounting holes

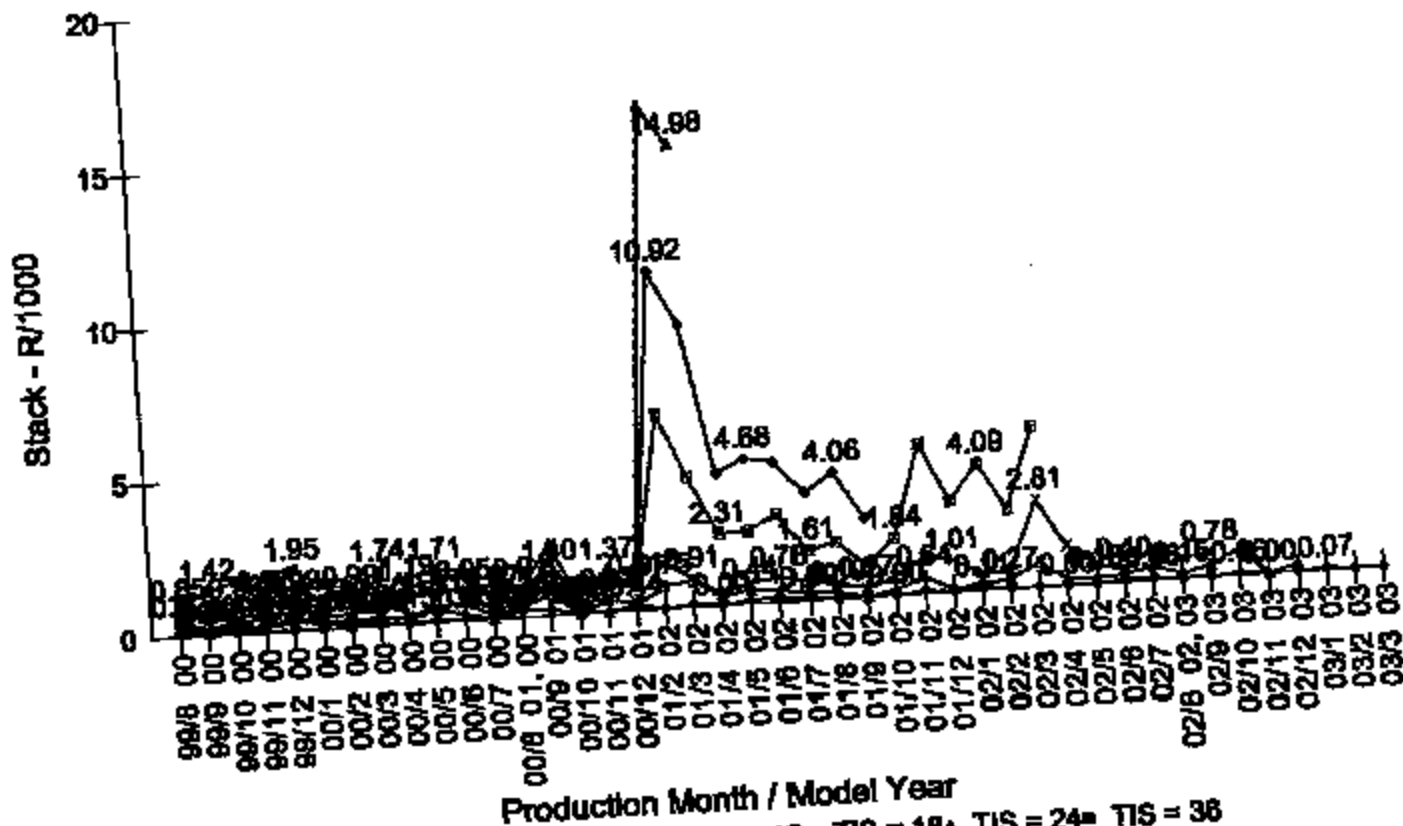
Worst case conditions (adjustion)

Large switch Diameter		
add Pin to tangent to pin		
	MIN (mm)	MAX (mm)
		14.3784
		3.9828
	Total	17.728
If chassis system (use the minimum bushing)=	18.9419-17.14851	OK- no fit
If chassis system (use the maximum bushing)=	18.9829-17.0881	OK- no fit

NOTE: print life of rest= 17.27-17.78

2T- U152(>02MY) and 5T- U150 (<02MY)

U152 13480 (Pollak 5T<02MY, 2T=02MY+)

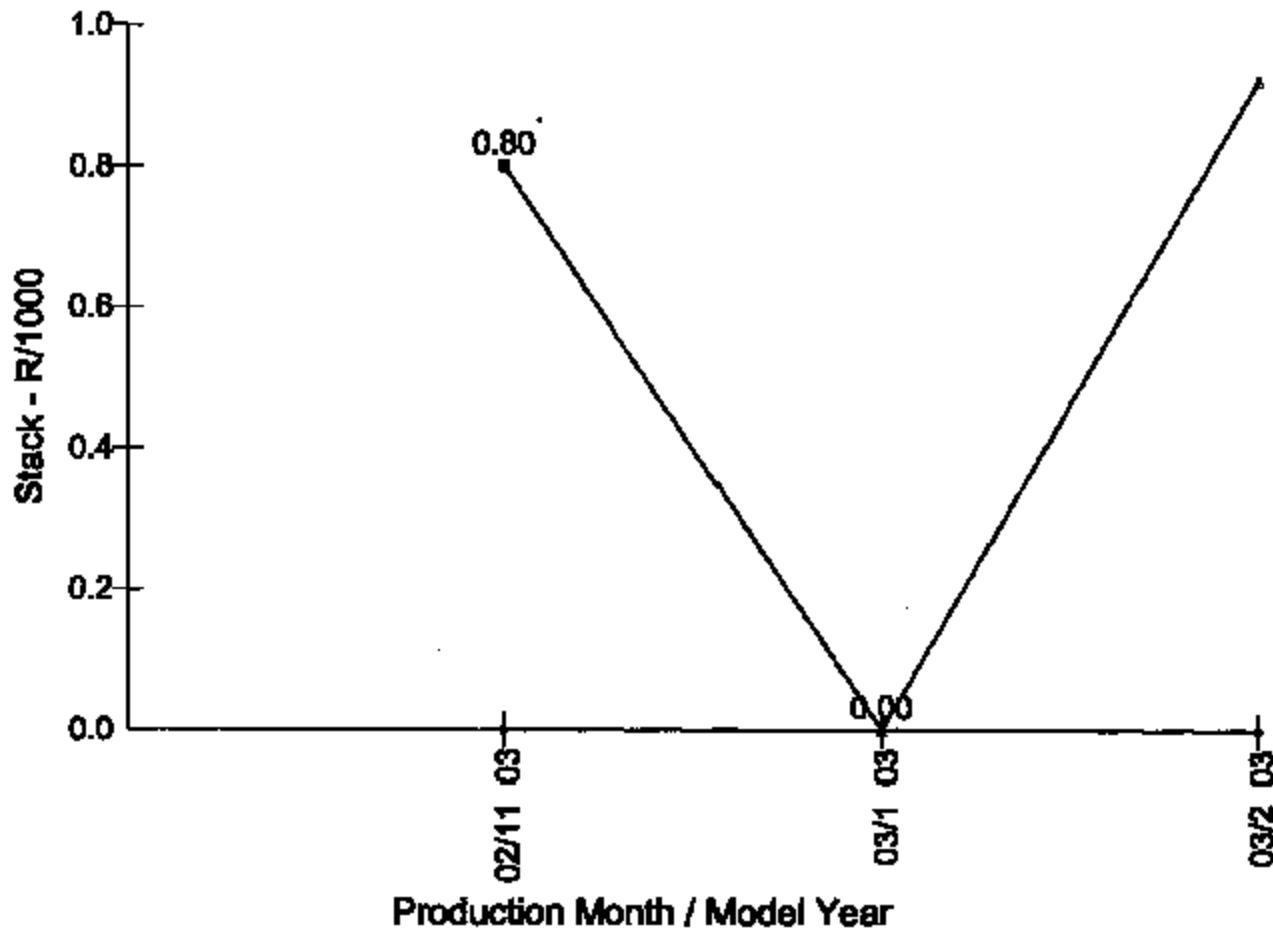


TIS Reported = 0,3,6,12,18,24,36

◊ TIS = 0 ◊ TIS = 3 × TIS = 6 ◻ TIS = 12 ◐ TIS = 18 ◑ TIS = 24 ◒ TIS = 36

2T- U231

U231 13480

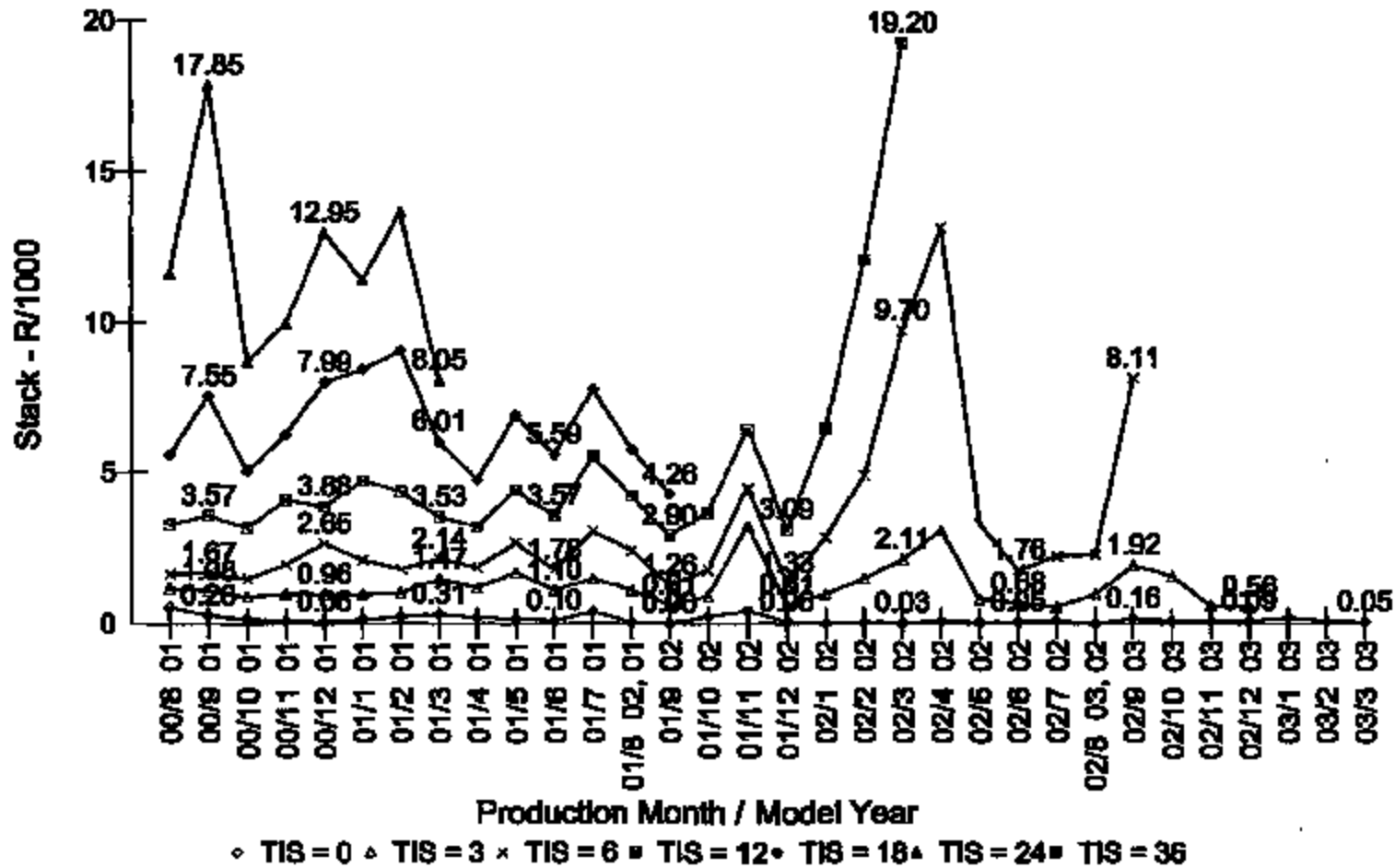


TIS Reported = 0,1,2,3,4,5

◦ TIS = 0 ▲ TIS = 1 × TIS = 2 ▣ TIS = 3 ◆ TIS = 4 ▲ TIS = 5

2T- D186

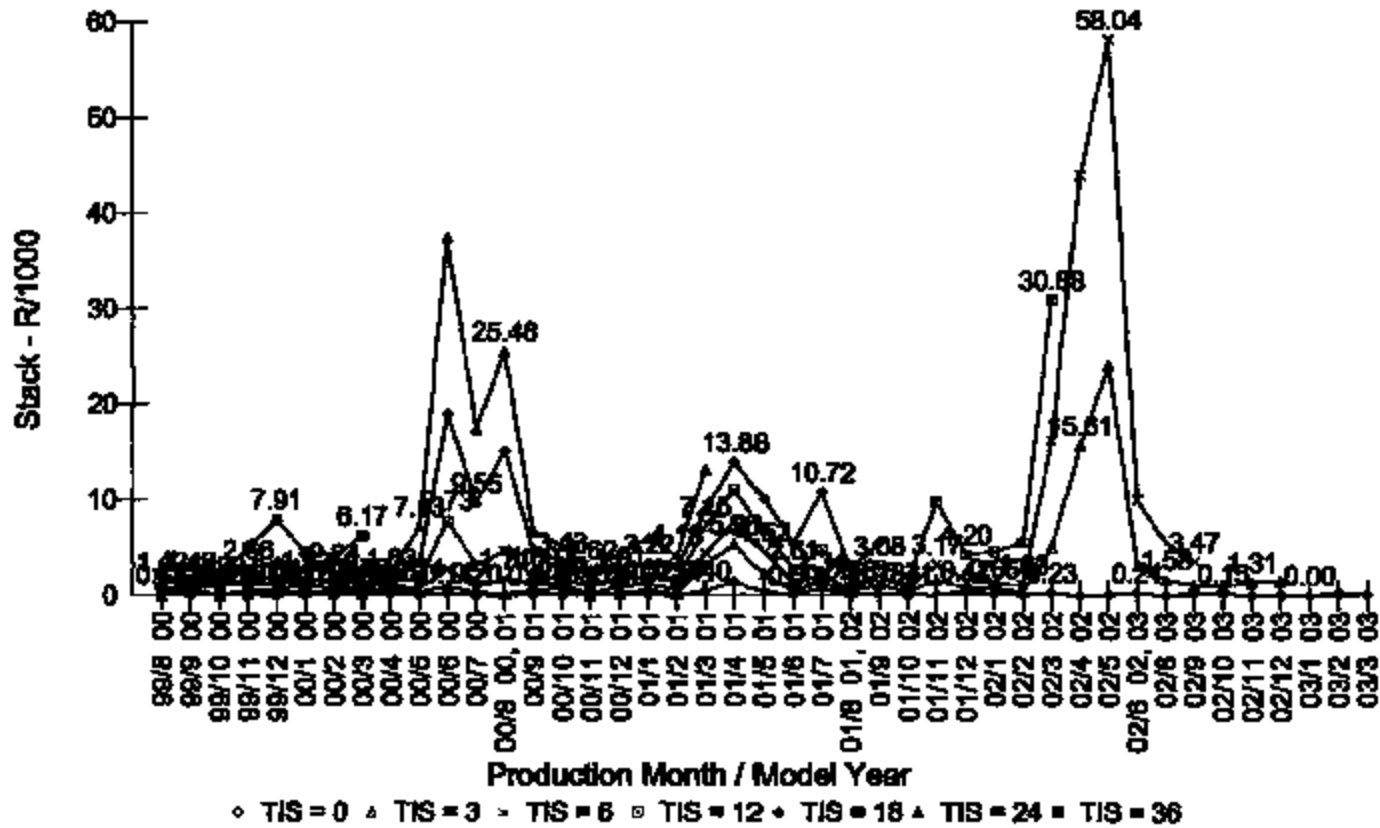
D186 13480 (Pollak 2T)



TIS Reported = 0,3,6,12,18,24,36

2T- W126

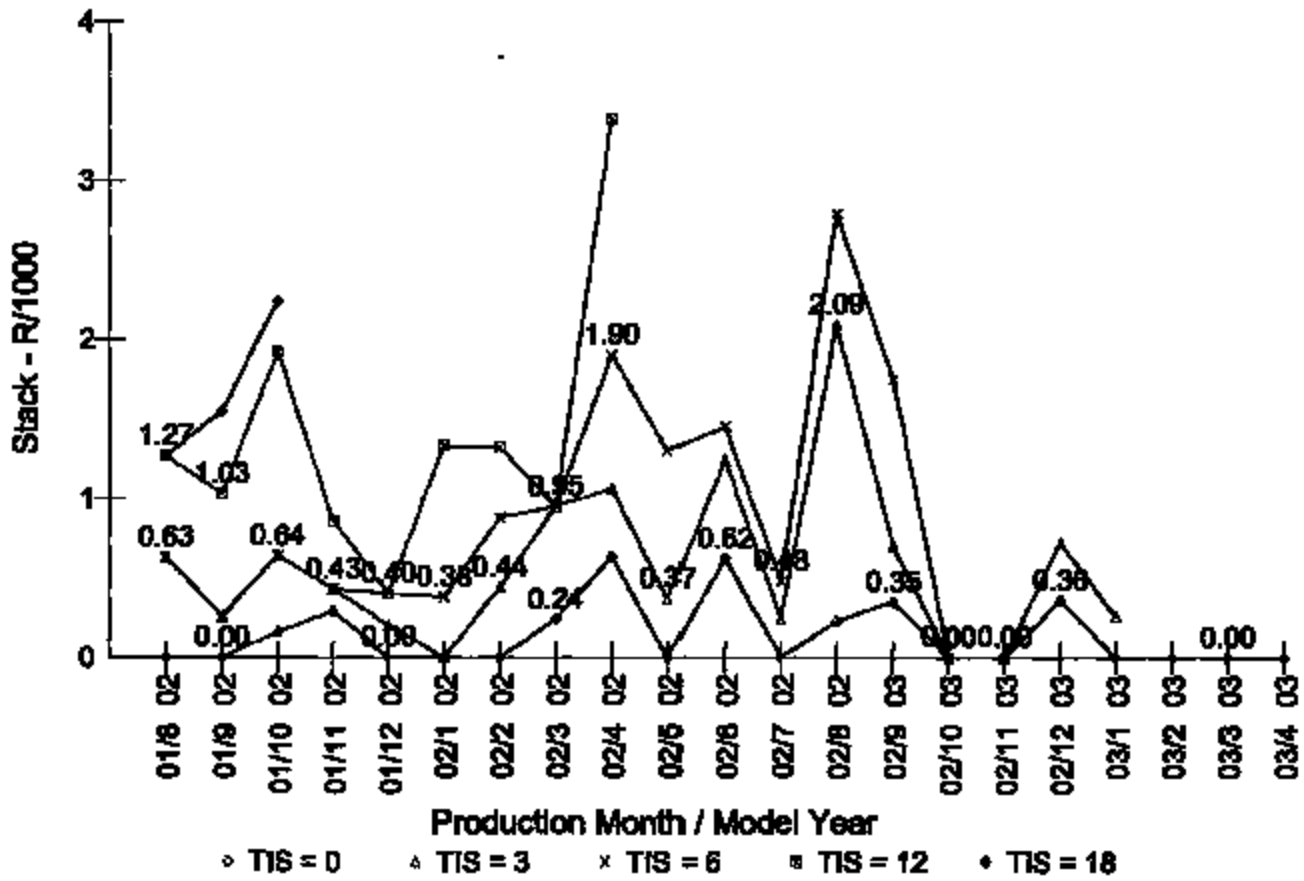
W126 13480 (Pollek 2T)



TIS Reported = 0,3,6,12,18,24,36

5T- UP207

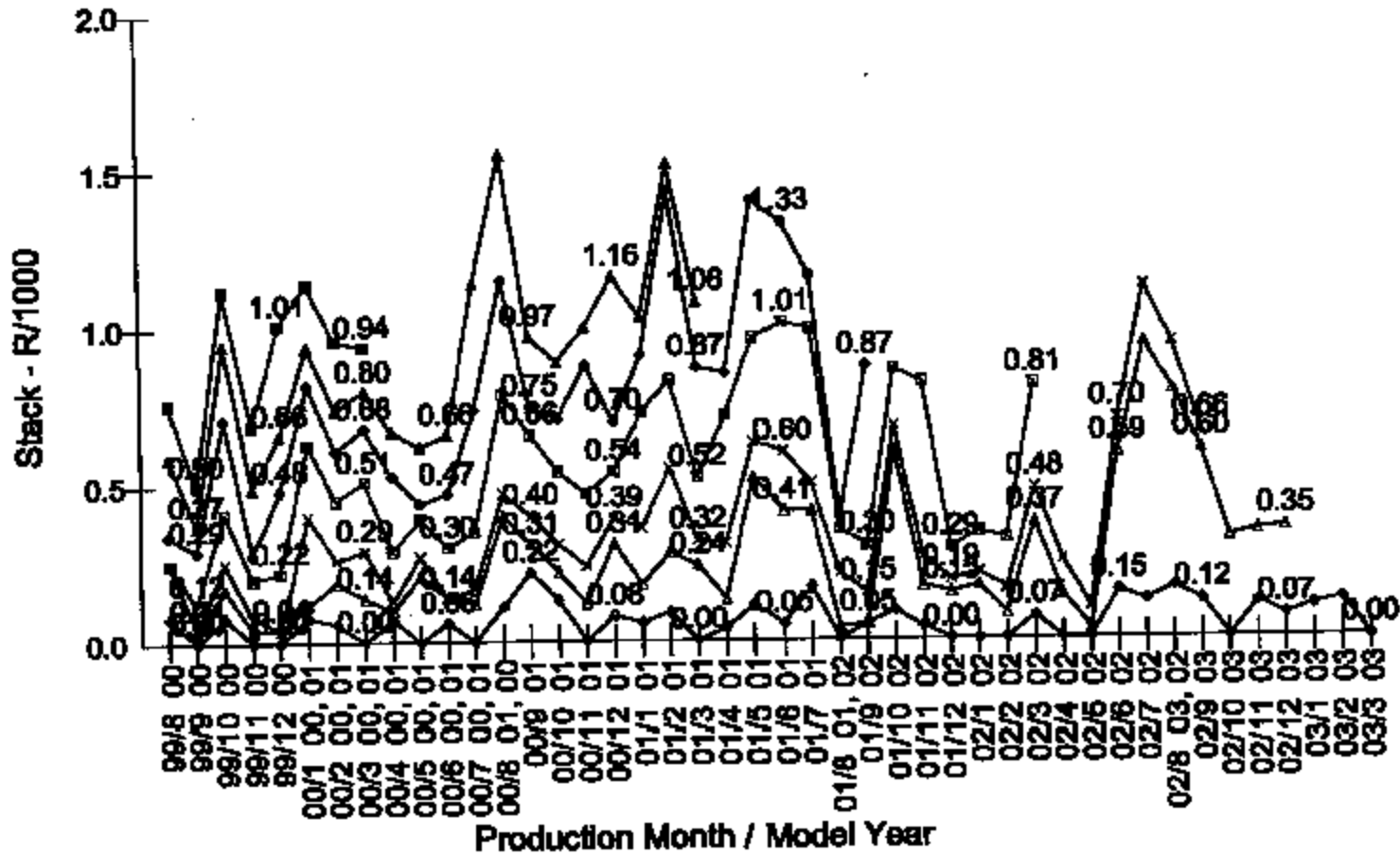
U/P207 13480 (Pollak 5T)



TIS Reported = 0,3,6,12,18

5T- F Series

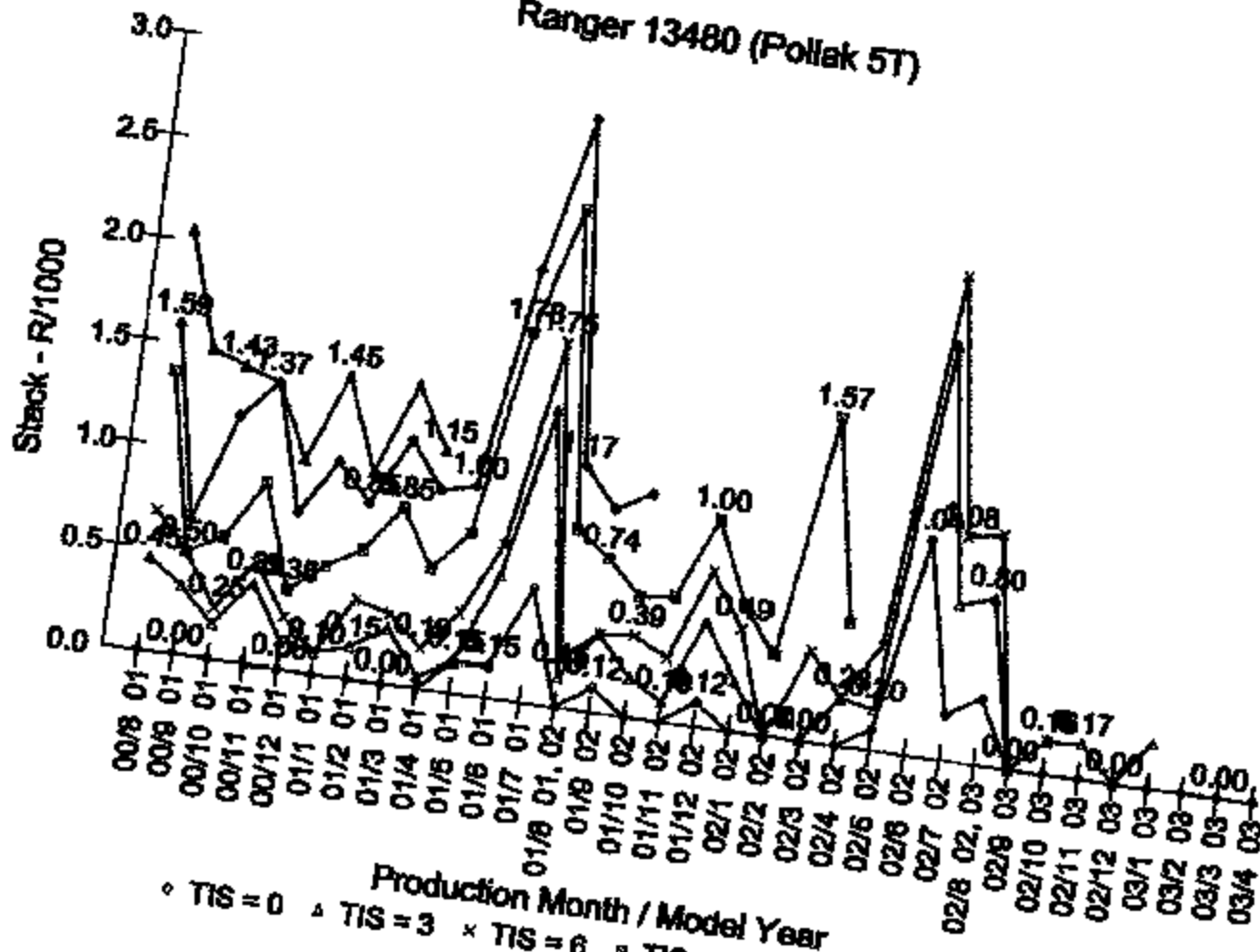
F Series 13480 (Pollak 5T)



TIS Reported = 0,3,6,12,18,24,36

5T- P150

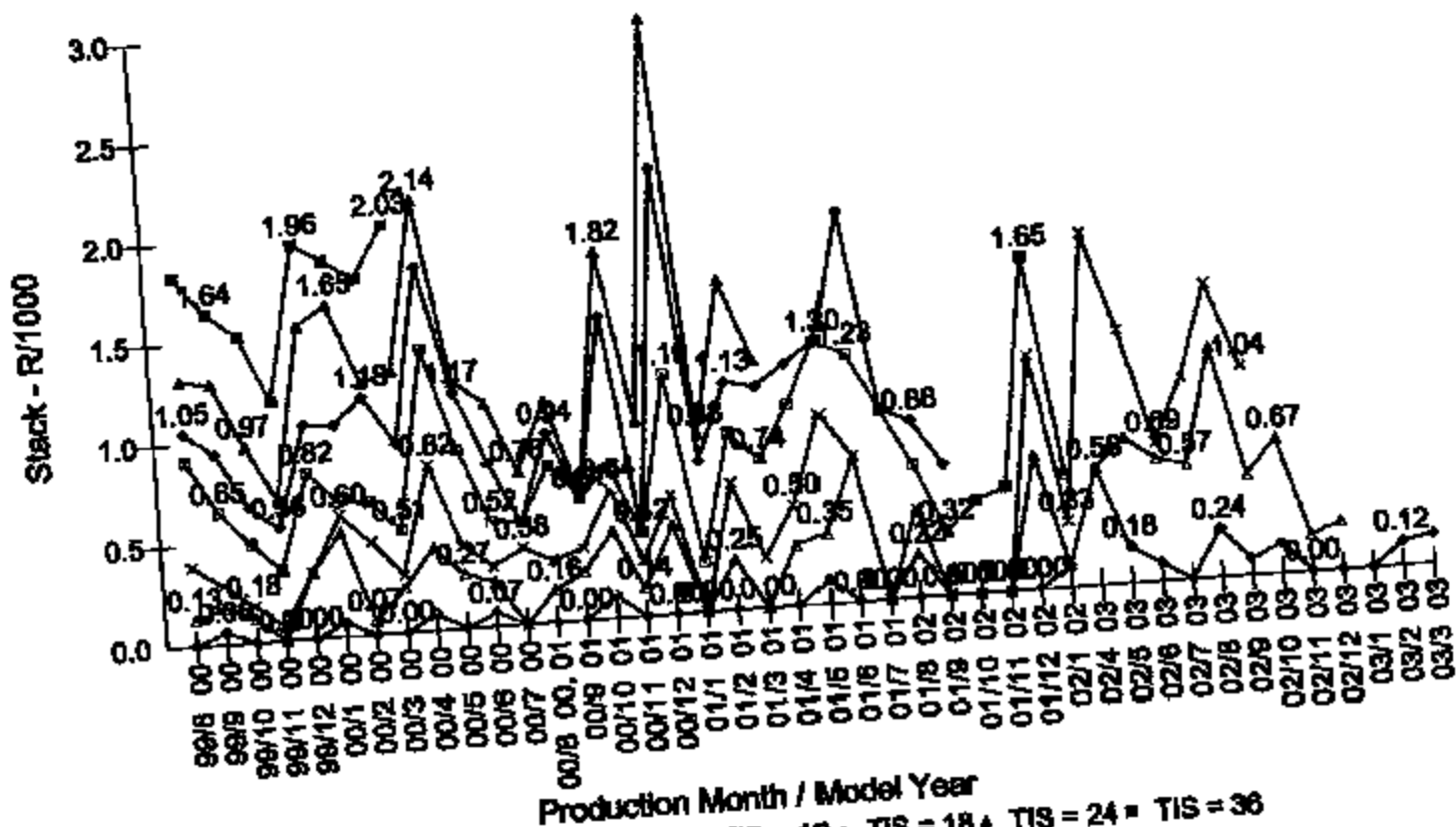
Ranger 13480 (Pollak 5T)



TIS Reported = 0,3,6,12,18,24

6T- U222/228

U222/228 13480 (Pollak 5T<02MY, 6T=02MY+)



TIS Reported = 0,3,6,12,18,24,36

Pollak's Top10 BOO Warranty for 02-03MY's

<u>RANK</u>	<u>MOD YEAR</u>	<u>LOGIC</u>	<u>Vehicle Line AWS</u>	<u>COSTS</u>	<u>CPRS</u>	<u>CPUS</u>	<u>R1000S</u>	<u>VEHICLES</u>
1	2002	60-day	A3 - WINDSTAR	105278.17	42.2	1.41	33.43	85234
2	2002	60-day	U2 - EXPLORER	73748.01	48.87	0.52	10.82	281887
3	2002	60-day	DA - TAURUS	67136.38	48.44	0.37	7.45	234548
4	2002	60-day	DM - SABLE	58104.95	42.91	0.9	20.63	77073
5	2002	60-day	F7 - F250HD/350/450/550	12754.67	60.16	0.08	1.41	198780
6	2002	60-day	U3 - MOUNTAINEER	10857.1	51.46	0.59	11.93	37719
7	2002	60-day	F5 - F150/250LD/CR CAB	9631.36	58.02	0.05	0.78	284234
8	2002	60-day	R1 - RANGER NON ELECTRIC	6785.84	56.55	0.09	1.54	108853
9	2002	60-day	S1 - EXPLORER SPORT TRAC	3914.03	59.3	0.1	1.74	44677
10	2002	60-day	U7 - EXPLORER SPORT	1992.38	55.34	0.13	2.36	16506
	2002	60-day	TOTAL	354394.52	46.58	0.51	10.94	1412421
<u>RANK</u>	<u>MOD YEAR</u>	<u>LOGIC</u>	<u>Vehicle Line AWS</u>	<u>COSTS</u>	<u>CPRS</u>	<u>CPUS</u>	<u>R1000S</u>	<u>VEHICLES</u>
1	2003	60-day	DA - TAURUS	14297.53	47.34	0.22	4.81	171442
2	2003	60-day	DM - SABLE	6482.39	44.1	0.49	11.04	29271
3	2003	60-day	A3 - WINDSTAR	5049.91	42.44	0.26	4.95	59236
4	2003	60-day	B3 - EXPEDITION	5556.17	77.17	0.09	1.16	103463
5	2003	60-day	F5 - F150/250LD/CR CAB	2877.62	48.77	0.04	0.88	146196
6	2003	60-day	U2 - EXPLORER	2409.4	49.17	0.04	1	108574
7	2003	60-day	F7 - F250HD/350/450/550	3480.55	75.66	0.06	1.2	133302
8	2003	60-day	B4 - NAVIGATOR	2140.33	101.92	0.13	1.26	22454
9	2003	60-day	U3 - MOUNTAINEER	647.36	43.16	0.07	1.58	15259
10	2003	60-day	S1 - EXPLORER SPORT TRAC	680.06	52.31	0.04	0.9	21420
	2003	60-day	TOTAL	44777.84	51.59	0.12	2.44	882103

Design Changes to Reduce Pollak's BOO Warranty

Pollak 2 Terminal Switch	Customer /Tech	Field Analysis	Switch Design Changes	System Changes
D166	Lts On & Park Shift Interlock	- Field returns show no problem found - Pedal box lash & wiring issues	- Change to stronger spring within switch to counter pedal weight (ETA Post J1 pending testing). - Change the switch actuation range (upwards) to compensate for system interaction. (C1 1470666: ETA NOV 03)	- Hi flex wire adopted to prevent wiring breakage. - Chassis & Switches developing System FMEA: cascade SC's to all suppliers
W126/ V229	Lts On	- Field returns show no problem found - W126 rod is major contributor to lts on	See above	- V229 improved robust pedal box & booster rod changed. - Wiring TBD (New supplier) - Chassis & Switches developing System FMEA: cascade SC's to all suppliers
U152	Lts On & Park Shift Interlock	- IVD vehicles predominantly. - Also 03MY not trending like 02MY.	See above	- Wiring sheathing on 03MY and takeout length reqs revision- Identified. - Redundant Speed deact switch changes @ J1 to address adj IVD vehicle problem with Lts on. - Chassis & Switches developing System FMEA: cascade SC's to all suppliers
U231	Lts On	TBD- Problem reported last week (Jun21)	See above	- Hi flex wire under review (3/10 claims). - Chassis & Switches developing System FMEA: cascade SC's to all suppliers
Pollak 555 Terminal Switch	Customer /Tech	Field Analysis	Switch Design Changes	System Changes
U222/228	Lts On & Park Shift Interlock	- Field returns show no problem found	- Added fine silver to low current contacts and deleted a set of contacts for improved closing forces and cost save. (CR 11438160 ETA 04MY J1)	TBD
F series	Lts On	Low R's	- Same as above	- Hi flex under review with systems engineering.
UP207	Lts On & Park Shift Interlock	Low R's	Low R's	- Hi flex wire being considered - Module/system operating below minimum current on select vehicles.
P150	Park Shift Interlock	Low R's	Low R's	- Hi flex wire being considered. - Module/system operating below minimum current on select vehicles.

Point 2 Terminal Switch	FR/1000	Identified Issue	Switch Design Changes	System Changes
D186	20R's for 02MY	Lis On (50% Claims)	-Change the <u>switch activation</u> range (upwards) to compensate for system pre-loading . ETA C11470585 NOV 03 - Change to <u>steeper spring</u> within switch to counter pedal weight ETA Post J1 pending testing. Estimated Improvement: 10R's - Processing issues on body mold & plunger are under review on 8 terminal ; actions initiated- will be reevaluated for 2 & 5 terminal designs.	- Chassis & Switches developing System FMEA: cascade SC's to all suppliers
		Park Shift Interlock (50% Claims)		-Hi flex wire adopted to prevent wiring breakage ETA Tested for Nov 03. Estimated Improvement-
W128	Normal noise = 4- 5R's in 01st digit (see 1st's spec cause)	Lis On (80% claims)	-Change the <u>switch activation</u> range (upwards) to compensate for system pre-loading . ETA: C11470585: ETA NOV 03: Estimated Improvement-6R's - Change to <u>steeper spring</u> within switch to counter pedal weight. ETA Post J1 pending Invehicle testing; Estimated Improvement: 02MY 6 month spits for fit and adj: 10R's - Processing issues on body mold & plunger are under review on 6 terminal ; actions initiated- will be reevaluated for 2 & 5 terminal designs.	- Chassis & Switches developing System FMEA: cascade SC's to all suppliers -Chassis changes on booster at same time of fit up being reviewed.
V229		Unknown	TBD if necessary.	- V229 Improved solenoid pedal box & booster rod changed. - Wiring TBD (New supplier=Dolph)
U152	20R's for 02MY	Lis On (70% claims- mostly fit pedal)	-Change the <u>switch activation</u> range (upwards) to compensate for system pre-loading . ETA: C11470585: ETA NOV 02: Estimated Improvement-6R's - Change to <u>steeper spring</u> within switch to counter pedal weight. ETA Post J1 pending Invehicle testing; Estimated Improvement: 10R's - Processing issues on body mold & plunger are under review on 6 terminal ; actions initiated- will be reevaluated for 2 & 5 terminal designs.	- Redundant Speed detect switch changes @ J1 to address adj IVD vehicle problem with Lis on. - Chassis & Switches developing System FMEA: cascade SC's to all suppliers
		Park Shift Interlock		- Wiring shorting on 02MY and lowest length wire revision- identified. Hi flex under review... testing in cold temps to solve dark issue.
U251 (adj pedal only offered)	5R's for 02MS	Lis On	Few earlier indicators due to slow sales. -May follow suit with spring change as detailed above. - Processing issues on body mold & plunger are under review on 6 terminal ; actions initiated- will be reevaluated for 2 & 5 terminal designs.	-See U152 - Hi flex wire under review for strand breakage (310 claims). - Chassis & Switches developing System FMEA: cascade SC's to all suppliers

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Patent Title Terminal English	Ref/1000	Identified Issues	Switch Design Changes	System Changes
L222228 (ed) pedal only offered)	double digit for 02MY	Park Shift Interlock (70% claims)	- Added fine silver to low current contacts and deleted a set of contacts for improved closing forces and cost save. (Running under start and being PSW'd with CR 11432180 ETA Oct03cy) - New set to 4 terminal switch due OCT31 will have new contacts with improved contact force and tolerani of contamination issue. - Processing issues on body mold & plunger are under review- actions initiated- will be reevaluated for 2 terminal and 5 terminal.	-Plant assemblies identified tight ptg's with wiring coating issues occasionally .
		Lin On (10% claims)	- Processing issues on body mold & plunger are under review on 6 terminal ; actions initiated- will be reevaluated for 2 & 5 terminal designs.	-Plant assemblies identified tight ptg's with wiring coating issues occasionally . - Pedal mounted deact may be set incorrectly due to assembly aid...pedal box needs revision to eliminate issue.
P221	4 claims for 1 MS	Park Shift Interlock (*J1 Plung issue)	See Same actions for L22228	
		Lin On	No data to support lin on issue. To be reevaluated.	
F series	3-4R's for 30MS	Lin On	-Same as above	- HI fix under review with systems engineering.
LP207	3-4R's for 15 MS	Lin On & Park Shift Interlock	- Processing issues on body mold & plunger are under review on 6 terminal ; actions initiated- will be reevaluated for 2 & 5 terminal designs.	- HI fix was being considered - Modulo/systems operating below minimum current on select vehicles.
P150	3-4R's for 24-35 MS	Park Shift Interlock	- Processing issues on body mold & plunger are under review on 6 terminal ; actions initiated- will be reevaluated for 2 & 5 terminal designs.	- HI fix was being considered. - Modulo/systems operating below minimum current on select vehicles.

Lighting Switch	Ref/1000	Identified Issues	Switch Design Changes	System Changes
EN	3-4R's for 24-30MS	Park Shift Interlock	None required	-Speed deact changed in Oct 02. Trending warranty. -Booster rod might be changed pending testing (Black bolt led by chassis)
FN	3-4R's for 24-30MS	Lin On	None required	-Speed deact changed in Oct 02. Trending warranty. -Booster rod might be changed pending testing (Black bolt led by chassis)
VN127	<3-4R's for 30MS	n/a	None required	None required
BN185	<2R's for 30MS	n/a	None required	None required

Model/Code Switch	R's/1000	Identified Issues	Switch Design Changes	System Changes
G170	5R's for 18 MS	TBD		- System released by Europe; changes made unknown.
U204	4R's for 18 MS	TBD		- Speed limit change (Oct02)
		RollOs	Under review with chassis for an 04MY build	- Brake pedal bezel process control tightened on flaps (Dec02)
DEW	4R's for 18 MS	TBD		
M205	2R's for 12MS	TBD		

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