Issue Number:

N202832

PDF Date Submitted 06/13/2006



☑ Complaint:

Engine will not start, sometimes sets DTCs B2960 and/or B3033

Issue Type:

**Current Prod** 

Vehicle/Product Line:

ZAcar

Region: GMNA

Severity:

Primary Metric/Score:

IPTV36 / 82.06

## Vehicle / Product Description

Primary Project No:

ION

Model Year:

2006

Other Project No(s):

Model Year Qtr:

Vehicle/Prop. #:

Saturn

Model Code: Hardware Stage:

Marketing Division: Marketing Region(s):

North America

(VIN) Vehicle ID #:

Engine(s):

Transmission(s):

Engine Serial #:

Transmission Serial #:

Drive Type(s):

Option(s):

Steering:

PIMREP No:

## Odometer Reading or Range in Miles from 1 to 3971

1st Level	er information - (VPPS):	2nd Level (VPPS):	3rd Level	(VPPS):		4th Level (VPPS)
	ation & Control	2 Customer Switch	5 Ignition		are and the	1 Switch
UPC:	FNA:	Part Name:		er en Var	Par	t Number:
		Ignition Switch		_0,020	103	392423
Supplier(s) N	Name:	DUNS Code(s):	Part Year:	Drawing Revision		ing Revision Date:
Delphi					01/0	1/1900
Suspect Part(	s) available?	Location of Suspect Part(s)	. At a 4. c1.2 mili	PIM (EPS	/PAD)	EPN
Yes O No	)	at Supplier				. , , , , , , , , , , , , , , , , , , ,

Date first reported:	Complaint Category:
ncident Discovered by:	Discoverer's Dept:

Source Level 1:	Source Level 2:	Source Level 3:

Incident Description: (Give detailed description of incident )

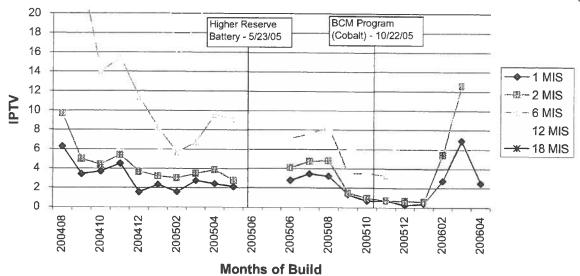
Customer complaint: No Start.

Tech findings:

Some indicate car will start by manipulating the ignition switch. Others indicate Passlock codes B2960 and/or B3033 are stored in history. Tech Repair: Replace ignition switch.

Complaints are increasing rapidly with vehicles built after February 2006:

## Trend Chart - Incidents per Thousand Vehicles



Some sample tech comments:

PRODDATE SALEDATE LBROP LBROP\_DESC

PARTNO MILEAGE VERBATIM

CUST STATES THE IGNITION IS NOT WORKING RIGHT. WHEN CUST STATES THE IGNITION IS NOT WORKING KIGHT, WHEN TURNING REY, DOESN'T START, BUT WHEN TURNING BACK, VEHICLE WILL START, FOUND A FAULTY IGNITION SWITCH CAUSING 'NO INITIAL' START. REPLACED AND REPROGRAMMED. VEHICLE 15 STARTS PROPERLY.

GUEST STATES CAR DOES NOT START AND MOTOR DOES NOT TURN OVER. VERIFIED. FOUND VEHICLE WOULD NOT CRANK IN FULL START POSITION, HAD TO BACK KEY OFF ABOUT 1/8" TO GET STARTER TO ENGAGE. REPLACE FAULTY IGNI TION SWITCH RECODE 17 BCM AND VERIFIED REPAIRS

SALES MANAGER RAYMOND STATES VEHICLE WONT CRANK OV ER.TECH INSPECTED CHECK CHARGING SYSTEM 12.74INGNITION WOULD ONLY SEND START SIGNAL IF TURNED V ERY SLOWLY AND ONLY IN ONE SPECIFIC SPOT.REPLACED IGNITION RETESTED

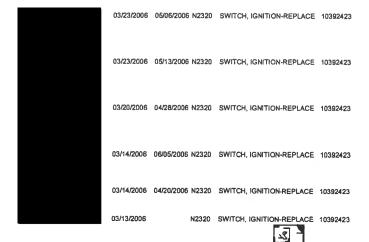
8 REPLACED IGNITION SWITCH AND RET

VERIFIED VEHICLE NOT STARTING AND LIGHTS ON AND RADIO OPERATING FOUND WHEN WIGGLING IGNITION SWITCH WIRES IT OPERATED INSPECTED TERMINAL TIGHTNESS ALL OK FOUND SWITCH BADREPLACED IGNITION SWITCH AND REPROGRAMED

8 PASS LOCK SYSTEM

CUSTOMER STATES THE VEHICLE WILL NOT START. INSPECTED TO FIND THE IGNITION KEY HAD TO BE HELD IN AN EXACT POSITION IN ORDER TO SENDIGNITION SIGNAL. REPLACED THE IGNITION SWITCH

- 5 AND REPROGRAMMED. NO FURTHER TROUBLE WAS NOTED. VERIFIED NO START NO CRANK FOUDN WIRE CONNECTOR AT SWITCH WAS WIGGLED VEHICLE WOULD START PER
  5 FOMREPLACED IGNITION SWITCH AND PROGRAMMED PASSLOCK



All warranty charts and details attached. Ign Sw ION after 0206.xls

Preliminary Root Cause: (Give preliminary Root Cause if known, do not speculate!)

Potential Root Cause Champion: (Select potential Root Cause Champion.)

Re-Assign

Potential Champion

Department:

Supplier Quality \*\*\* Spring Hill

or: Name :	Van Wirt, Thom Phone: Fax:	as	
Evaluation Informa	tion (Test)		PRIENCES PROMINENT
Procedure: (Test Schedule)	% Complete (Test Schedule):	Driving Conditions:	Environmental Conditions:
Odometer:	Vehicle Test:	Part Durability:	Part Test:
Containment			takan an asamaman eng
Plant Information	and the same of th		#
Description of Plant	Containment:		- 11 0 10 10 10 10 10 10 10 10 10 10 10 1
Plant: V	N: Breakp	point Date: Contact Person:	Tel. No:
Field Information		7 - 200 - 400 - Was	something of the second
Description of Field	Containment:		
Breakpoint Date:	Contact Person	: Tel. No:	
	CONTROL CONTROL PROPERTY CONTROL CONTR		
Invalved Compone	Section 18 Section Section 2 to the Sect		
Component:	Plant		
o igibalor informati	on .		
Document Originator	SAMUEL GREBE/US/GM/GM	MC 06/13/2006 02:5	2:04 PM
Location:	Milford, MI	Phone:	
	OM *** Olahal Facility **	** North America Engineering *** C	Continuous Improvement
Dept.: Document informat	Cost & Quality, WVAE *** Re	ed X and Warranty Engineering ***	Warranty Engineering-Car

ast Modified by	BRAD I COOK/US/GM/GMC 06/20/2006 12:10:49 PM			
History	BRAD I COOK/US/GM/GMC - 06/20/2006 12:10:49 PM			
	BRAD I COOK/US/GM/GMC - 06/20/2006 12:10:46 PM			
	SAMUEL GREBE/US/GM/GMC - 06/13/2006 03:16:21 PM			

SAMUEL GREBE/US/GM/GMC - 06/13/2006 03:14:29 PM N202832 Issue Number:

Ignition Switch -Steering Column Part - Location:

Impact

Engine will not start, sometimes sets DTCs B2960 and/or B3033 Complaint:

Vehicle Line:	Prioritizati	on Ranking by:	Priority Val.:		Bypass:	Link:	, ,
ZAcar	IPTV36			82.06	n		r
		Yes				W. Perlinent Committee	

Other Vehicle/Product Line(s) involved:

Assessment of Customer Salisfaction impact

Customer Survey:		Customer Survey Category:	Custor Survey	10.000	Customer Survey Category:	
Marketing Division / Vehicle Line	PPH	MY	Wave	PPH	MY	Wave
Saturn Ion						
Not Applicable						
Not Applicable.						
Not Applicable						
Not Applicable						
Not Applicable						<b>—</b>
Not Applicable						
Not Applicable						
Not Applicable						
Not Applicable						
Not Applicable						
Powertrain 1						1
Powertrain 2						
Powertrain 3						
Powertrain 4						
Report Date:	El <del>di</del> scue	M 05 6	Customer St	rvey Specialist:		

Sales R	egion:	North Ame	erica		Currency:	\$US		
Labor	Codes:	31, <del>450</del> 71. 1	10.2010.00	ALL RES	F 1 (	and the second second		
Primary	: N2	320					1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	P-10/247-1-1-1
	or Code:	24	3.0		1.00			
3rd Lab	or Code:							
	or Code:			***			·	
	or Code:						-	
	The second second	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	Manager Strategy	Months	in service	10.000000000000000000000000000000000000	William & Justice	Helicon Die vie
Measure	Marketing Division / Vehicle Line	0	2	6	12	24	36	Model Year
IPTV	Saturn Ion	1.23	7.37	18.23	36.44	0	106.88	2006
IPTV	Not Applicable	0	Ō	0	0	0	0	
IPTV	Not Applicable.	0	0	0	0	0	0	† – –
IPTV	Not Applicable	0	0	0	0	0	0	
IPTV	Not Applicable	0	0	0	0	0	0	
IPTV	Not Applicable	0	Ō	0	0	0	0	
IPTV .	Not Applicable	0	0	0	0	0 ,	0	
IPTV	Not Applicable	0	0	0	0	0 147	0	
	Not Applicable	0	0	. 0	0	0	0	
	Not Applicable	0	0	0	О	0	.0	
	Not	0	0	0	0	0	0	-

Tok.

PTV	Powertrain 1	0	0	0	0	0	0	
IPTV	Powertrain 2	0	0	0	0	0	0	
PTV	Powertrain 3	0	0	0	0	0	0	
IPTV	Powertrain 4	0	0	0	0	0	0	
Cost / Vehicle	Saturn Ion	0.11	0.55	1.34	2.55	0	7.4	2006
Cost / Vehicle	Not Applicable	0	0	0	0	0	0	
Cost / Vehicle	Not Applicable.	0	0	0	0	0	0	
Cost / Vehicle	Not Applicable	0	Ô	0	0	0	0	
Cost / Vehicle	Not Applicable	0	0	0	0	Ō	0	
Cost / Vehicle	Not Applicable	0	0	0	0	0	0	
Cost / Vehicle	Not Applicable	0	0	0	. 0	0	0	
Cost / Vehicle	Not Applicable	0	0	0	0	0	0	
Cost / Vehicle	Not Applicable	0	0	0	0	0	0	
Cost / Vehicle	Not Applicable	0	0	0	0	0	0	
Cost / Vehicle	Not Applicable	0	0	- 0	0	0	0	
Cost / Vehicle	Powertrain 1	0	0	Ö	0	0	0	
Cost / Vehicle	Powertrain 2	0	0	0	0	0	Ō	
Cost / Vehicle	Powertrain 3	0	0	0	0	0	0	
Cost / Vehicle	Powertrain 4	0	0	0	0	0	0	
Solution (%):	Effectiveness							
Report	Date:			Wa	rranty Special	ist:		
06/12/2	006				m Grebe			

Claim rates are for IONs built after Feb 2006.

Plant	% Direct Run Improvement (< 100)	GCA Value	GM Rating	Ergonomics	Productivity
Report Date:	A STATE OF THE STA				

Assessment	of Aftersales Impact							
FPR No.:								
Metric:	No of Cases:	Comments:	. The state of the	-				
TAC:			and the second s					
CAC:			100					
Buybacks:								
FPR:								

Cost Reduction	
Type of Cost Reduction:	Tracking Number:
Marketing Division / Vehicle Line	Amount of Reduction (\$US):
Saturn Ion	0
Not Applicable	0
Not Applicable.	0
Not Applicable	0
Powertrain 1	0
Powertrain 2	0
Powertrain 3	0
Powertrain 4	0
Report Date:	
Cost Reduction Comments:	

Risk Assessment Numb	er/FMEA		
Marketing Division / Vehicle Line	FMEA Severity:	FMEA Occurrence:	FMEA Detection:
Saturn Ion	v (i		
Not Applicable			
Not Applicable.	4-0		
Not Applicable			
Not Applicable			
Not Applicable			
Not Applicable	- 17.4		
Not Applicable			
Powertrain 1			
Powertrain 2			
Powertrain 3			<b>-</b>
Powertrain 4			

Regional interenatio	n e e e e e e e e e e e e e e e e e e e		
Description	Value	Description	Value
Physical Test		Issue Resolution Team Approval Date	
GMM ICE PPH		4	
5		CTF Repeat Occurrences	
ZDW Plant&Value		8	
Direct Run Loss		PDT	
Highlight Number		12	
Plant Controllable		Build Sequence	
24hr Verification		16	
Sequence Number		18	

Local	reeuback Owner
Document Inform	ation
Document created	by: BRAD I COOK/US/GM/GMC 06/20/2006 12:10:40 PM
Last Modified by	
Issue Number:	N202832
Part - Location:	Ignition Switch -Steering Column
Complaint:	Engine will not start, sometimes sets DTCs B2960 and/or B3033
Assign Root	Cause Champion
Department:	Champion:
Supplier Quality **	Spring Hill Van Wirt, Thomas - Phone: Fax:
Nomination Com	nents:
Champion Histor	:
Assign Root	Cause Champion Designee
Department:	Champion:
Champion Desig	ee History:
Assign Root	Cause External Designee
Assignment Date:	Department : External Designee: Name :
External Designe	History:
Root Cause /	nalysis
Target Date: 07/20/2006	Actual Date: Actual date reported by champion: 06/28/2006
Description of F	oot Cause Investigation Progress and Verification:

Author: THOMAS VAN WIRT/US/GM/GMC on 28-Jun-2006 13:26

There are two main causes for the "no start" issues as described in the problem statement:

- 1) During on going review of parts returned from the field, Delphi identified a condition where the voltage "noise" in the switch created a communication issue with the pass lock system. The voltage "noise" was created by the contacts fingers which had insufficient load and potential for skips in the PCB traces.
- 2) During late April of 2006, Spring Hill Assembly began experiencing an issue where a drop in voltage occurred when the switch was turned to the start position. The codes being set were 2960 and 3031.

Upon review of the returned switches it was found that the contact fingers were damaged. This condition was created due to an improper alignment between two of the components (Anti-theft cylinder and the plunger Key-In) at the time of the installation of the rotor and contacts. Alignment is required as to not allow the rotor to contact any of the sides of the housing which induces the issue.

☑Problem Solving Methodology:	
Document the Solving Process seen as	appropriate
Other Statistical Methods	True in the second seco
Potential Solution Champion / De	partment:
Department:	Potential Champion:
or	Supplier Quality *** Spring Hill
Name:	Van Wirt, Thomas
	Phone:
	Fax:
☑ Problem mainly caused by:	Field Remedy Requested?
Supplier	No
Root Cause Summary:	
There are two main causes:	
1) The voltage "noise" was	created by the contacts fingers which had insufficient load and potential for skips
n the PCB traces.	· '
<ol><li>Upon review of the return</li></ol>	ned switches it was found that the contact fingers were damaged. This condition
was created due to an improper alig	nment between two of the components at the time of the installation of the rotor
and contacts.	

Decument Inform	allon 🐣 🗀			
Document created	by: BRA	D I COOK/US/GM/GMC	06/20/2006 12:10:40 PM	and collection to the expect LATE.
Last Modified by:	THO	MAS VAN WIRT/US/GM/GMC	06/28/2006 02:26:41 PM	
Issue Number:	N202832			
Part - Location:	Ignition Swi	tch -Steering Column		$\otimes$
Complaint:	Engine will	not start, sometimes sets [	OTCs B2960 and/or B3033	SOL
Assign Soluti	on Champi	on .		
Department:		Champion:	AND A THE RESIDENCE OF THE STATE OF THE STAT	ACCRECATION OF THE REAL PROPERTY.
Supplier Quality ***	Spring Hill	Van Wirt, Thomas - Phone	Fax	
Nomination Comr	ments:			

Champion History:

Assign Solution Cha	mpion Designee		
Department:	Champion:	a light state of the first of t	
and the other two transports of the other Control o			

Champion Designee History:

Assign Solution External Designee

Assignment Date:	Department: Name:	Champion Designee:		1880 m/l
	March 180 Blacks of States	- 100 or 100 min - 1.50	90 mg - Want (10 175 )	

## External Designee History:

Develop Solution	on / Make Decision o	n Solution
*Target Date:	Actual Date:	Actual date reported by champion:
07/28/2006	06/28/2006	
Description of Sol	ution Investigation Progress	and Verification:

Author: THOMAS VAN WIRT/US/GM/GMC on 28-Jun-2006 15:24

1) The solution to the load and skip issue in the PCB traces is to change the PCB design to remove via holes from contact traces. In addition, the PCB vias were enlarged to avoid the contacts from being in close proximity to the vias. The detent plunger torque force was increased. This change was treated as a black box tier 3 design change and was approved via a 3660 document signed off by the GM DRE.

2) The solution to the quality issue experienced during April of 2006 was to improve the assembly method to reduce the risk of a wrong alignment and installation of the rotor. The operation was modified to assure that the components are properly aliqued, to provided a better and standardized position of the cylinders. In addition, an alignment fixture was implemented in the rotor assembly operation to avoid possible contact risk between the switch housing and contact fingers. The fixture is being placed over the anti-theft cylinder to let the rotor slide through it straight, positioned in the proper manner without contact or incorrect balance during its Also, a contact force gage assembly. was implemented to verify that 100% of the contact finger forces in order to segregate those fingers with a force lower than 20 mg. This action will prevent assembly contact with enough force to make good contact with the traces of the PCB.

the second secon				
Aftersales Field Fix: N	I/A			

EWO #:	Approval / Release Date (i.e. CAB, etc):	Validation Part Availability Date:	TID (Target Implementation Date) of EWO:
		_	

EWO Part Actions New Part Number Required? New Part Number O Yes O No Stock Disposition Domestic Stock Disposition Export Service Disposition Service Interchange (Retailer) Exchange Aftersales Warehouse Parts according to Engineering/VLDM decision? Department: Potential Champion: Supplier Quality \*\*\* Spring Hill Name: Van Wirt, Thomas Phone: Fax: Summary Solution Type 2. Design change without new requirement / specification Solution Summary: The solution to the load and skip issue in the PCB traces is to change the PCB design to remove via holes from contact traces. In addition; the PCB vias were enlarged to avoid the contacts from being in close proximity to the vias. The detent plunger torque force was increased. The solution to the quality issue experienced during April of 2006 was to improve the assembly method to reduce the risk of a wrong alignment and installation of the rotor. Document created by: THOMAS VAN WIRT/US/GM/GMC 06/28/2006 02:26:21 PM Last Modified by: THOMAS VAN WIRT/US/GM/GMC 06/28/2006 04:24:01 PM Issue Number: N202832 Part -Ignition Switch -Steering Column Location: Engine will not start, sometimes sets DTCs B2960 and/or B3033 Assign Implementation Champion Department: Champion: NA Plant Support SQ, Vehicle and Van Wirt, Thomas - Phone Stamping Operations \*\*\* DOR, BG, SHM, MOR, SHR Assign Implementation Champion Designee Department: Champion: Assign Implementation Champion Designee

Author: THOMAS VAN WIRT/US/GM/GMC on 12-Aug-2006 9:52

Actual Date:

08/12/2006

External Designee:

Actual date reported by champion:

Company:

Target Date:

07/28/2006

Implement Solution

Description of Implementation:

The implementation date of the following solutions in SHM was 7/17/06:

The solutions to the load and skip issue in the PCB traces is to change the PCB design to remove via holes from contact traces. In addition; the PCB vias were enlarged to avoid the contacts from being in close proximity to the vias. The detent plunger torque force was increased. The solution to the quality issue experienced during April of 2006 was to improve the assembly method to reduce the risk of a wrong alignment and installation of the rotor.

Breakpoint(s) Plant:	Date:	VIN / Val Vehicle	
ODI I Caria abili TN	07/47/0000		
SPH-Springhill TN	07/17/2006		enthries of Aurusta Maria Parlament Front Land
Breakpoint(s) Involved Compe Plant*Component / Supplier*			
Plant Component / Supplier	Part.	Serial - No:	Date Breakpoint:
0	TOUR STATE OF THE		
Component/Part:	Plant / Supplier:	Serial - No:	Breakpoint:
Department : or Name :	Grebe, Samuel Phone:	nty Engineering *** Warranty E	
Service Bulletin - 17 17 17	INCOME TO THE PARTY AND PARTY AND PROPERTY AND STATES.		THE RESIDENCE OF THE PARTY OF THE PROPERTY OF THE PARTY O
Service Bulletin Requested:	Service Bulletin #:	Bulletin Release Date:	Applicable Region/Country:
Service Bulletin Name/Desc.	.4		
sumaav			
☑Implementation Summary:			
Document created by: The	IOMAS VAN WIRT/US/GM/0	GMC 06/28/2006 04:23:34 PM	
	IOMAS VAN WIRT/US/GM/		
Issue Number: N202832		00/12/2000 10:02:12 / 11/1	
⊉ Part - Ignition Si Location:	witch -Steering Column	sets DTCs B2960 and/or B	FB 3033
Assign Feedback Char	mpion		And the part of the state of th
Department:	Champion:		
Red X and Warranty Engineering Warranty Engineering-Car	*** Chase, Bill - Phone.	Fax	
Assign Feedback Char	mpion Designee		
Department:	Champion:		
Assign Feedback Exte	rnal Designee		
Company:	External Designee:		
Feedback			
Target Date: Act	tual Date:	Actual date reported by champion:	10 MAIR

12/10/2006	12/20/2006	
Did the Solution fix the		
Yes O No	, production and the second se	N 40 MF
Copy of the data analy	ysis to support the above conclusion:	PRODUCT COLUMN TO THE REAL PROPERTY OF THE PRO
MOB Chart for N2320		and and the same same same same same same same sam
. <u></u>	- ignilion omton	
N2320_ZA67_20DE06x	de	
Feedback Summary:		
	cases since BP) demonstrate issue h	as been resolved
Bogunen momato		
Document created by:	THOMAS VAN WIRT/US/GM/GMC	08/12/2006 10:51:52 AM
Last Modified by:	Bill Chase/US/GM/GMC	12/20/2006 09:43:24 AM
Issue Number: N2	02832	A S S S S S S S S S S S S S S S S S S S
⊉ Part - Ior	nition Switch -Steering Column	
Location:	miori oution Glocinig Column	Field
2/		Remedy
Complaint: En	igine will not start, sometimes sets	DTCs B 2960 and/or B 3033
	2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	And the second s
Assign Field Rer	nedy Champion	
Department:	Champion:	
= Others are control of our control of the		
Field Remedy		
Field Remedy Comme	ent:	
Date	VIN / Part Number Meas	и поменя на полителнителнительной продуктивной при полительной полительной полительной полительной полительной В ИГС
Document created by:		
Last Modified by	Legang .	

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Issue Number:	N202832
Part - Location:	Ignition Switch -Steering Column
Complaint:	Engine will not start, sometimes sets DTCs B 2960 and/or B3033
Solution for r	new Design / Project
Shall a Lessons Le	earned Request be sent?
Step when issue w Learned:	äs flagged as Lessons
Flagged by:	
Standard Work Ele	ment:
Lesson Learned N	umber:
Has the issue been Learned database	rentered in the Lessons    Yes   No
Document Inform	
Document created	by:
Last Modified by	