PE10-027

VW

10-4-2010

EXHIBIT TO REQUEST 8, DATA

Action	Document	Start Date:	End Date:	Subject/Objective:	Responsible:	Summary:
Action 08-01	08-01_Engine Wiring Loom MY01-03.pdf	unknown	about Summer 2003	Failure analysis of Wiring Harness	VWGoA - EEO	Moisture ingress into wiring loom stated as cause or risk for smoldering/fire incidents. The reports covers 9 of the incidents identified in request 2: 4 incidents appear to be pencil coil related, 5 match with the vehicles with unknown incident origin. From today's point of view 2 of the VINs mentioned appear to be heat shield related (subject to R5 recall), 1 shows replacement of an alternator, 1 VIN is not existent. Some reports state extensive damage while the respective repair history shows only coil and wiring repair. In summary the report is not conclusive.
Action 08-02	08-02_R060043R001.pdf	4/11/2006	5/16/2006	Warranty part analysis of electrically failed coil.	Supplier Eldor	No apparent exterior damage detected Corrosion found inside the coil housing. Moisture ingress caused internal electronic components to overheat. The overheating interrupted the power supply circuit. This coil was replaced as the result of an ordinary warranty repair because it had stopped working. The condition identified did not and could not cause a vehicle fire.
Action 08-03	08-03_R100416001.pdf	5/7/2010	6/24/2010	Failure analysis of overheated pencil coil.	Supplier Eldor	Moisture ingress caused a fault in the internal electronics. This report matches one of the coil incidents identified in request 2.
Action 08-04	08-04_Ignition Coil Wiring Harness Replacements.pdf	N/A	N/A	All P1 vehicles - Multiple	Mark Thomas	Power point slide containing "Melted ignition coils result in melted wiring harness connecters; Melted wiring harness connecters result in wiring harness replacement"
Action 08-05	08-05_WVWLK73CX7E005306 Westlake Testing.pdf	3/29/2008	9/18/2008	2007 - Passat Wagon - Single	James Chipman	Testing and Repair Order information for VIN WVWLK73CX7E005306 with a melted coil
Action 08-06	08-06_WVWAK73C77P147155 Westlake Testing.pdf	11/8/2008	12/22/2008	2007 - Passat Sedan Single	James Chipman	Testing and Repair Order information for VIN WVWAK73C77P147155 with a burnt coil
Action 08-07	08-07_WVWAK73C16E037759 CR to PL.pdf	3/10/2010	3/10/2010	2006 - Passat - Single	Greg Peters via Todd Krause	CR escalating a coil fire to PL on VIN WVWAK73C16E037759

9752 – Engine Wiring Loom - PASSAT/Audi A4 - MJ01-03 VWoA / AoA

- **Customer Complaint VWoA**
  1. MIL on & rough running at cold start
  2. Risk of engine fire

- **Technician Findings/Actions**
  1. Diagnosis shows vehicle performance is o.k. Latest software is installed and coils are of latest level.

  2. Engine fire confirmed to start at coil connector.

- **Field Analysis**

1-2. Moisture ingestion (capillary action) into the ignition circuit from unsealed ground connection on valve cover causes signal contamination resulting in misfire at cold start. Potential also exists for moisture to create electrical bridge between multiple pins on the coil connector- resulting in localized high temperature situation caused by a electrical short.

- **Additional relevant information:**

ECR (20030513086) in process to address production change. Production change slotted for KW44.

Awaiting factory implementation to address field via Technical Bulletin & Parts. Estimated cost per vehicle of $16.00 USD (parts & labor).

9752 – Engine Wiring Loom - PASSAT/Audi A4 - MJ01-03 VWoA / AoA

Field Situation 3rd Quarter 2003	VW	Audi
Number of Vehicles in Market	166,323	91,267
Number of Total Claims for PID	70 (2)	55 (1)
Field Reports	0	0
VOQs	0	0
Customer Complaints	0	0
Fatalities/Injuries/Fires/Rollovers	0/0/3/0	0/0/3/0
Internet/NHTSA Activity	0/0	0/0
Cost for entire historical period		
Cost per Vehicle	$0.91	$1.81
Total Cost	$151K	$165K

** Note - Total harness cases in historical period: 4 fires, 2 melted, 2 shorted harnesses.

** Note - Other coil related fires identified A6/Golf/Jetta/NewBeetle total 6

RK CASES- VW & AUDI 1.8T LONGITUDINAL MOUNT

VWoA / AoA

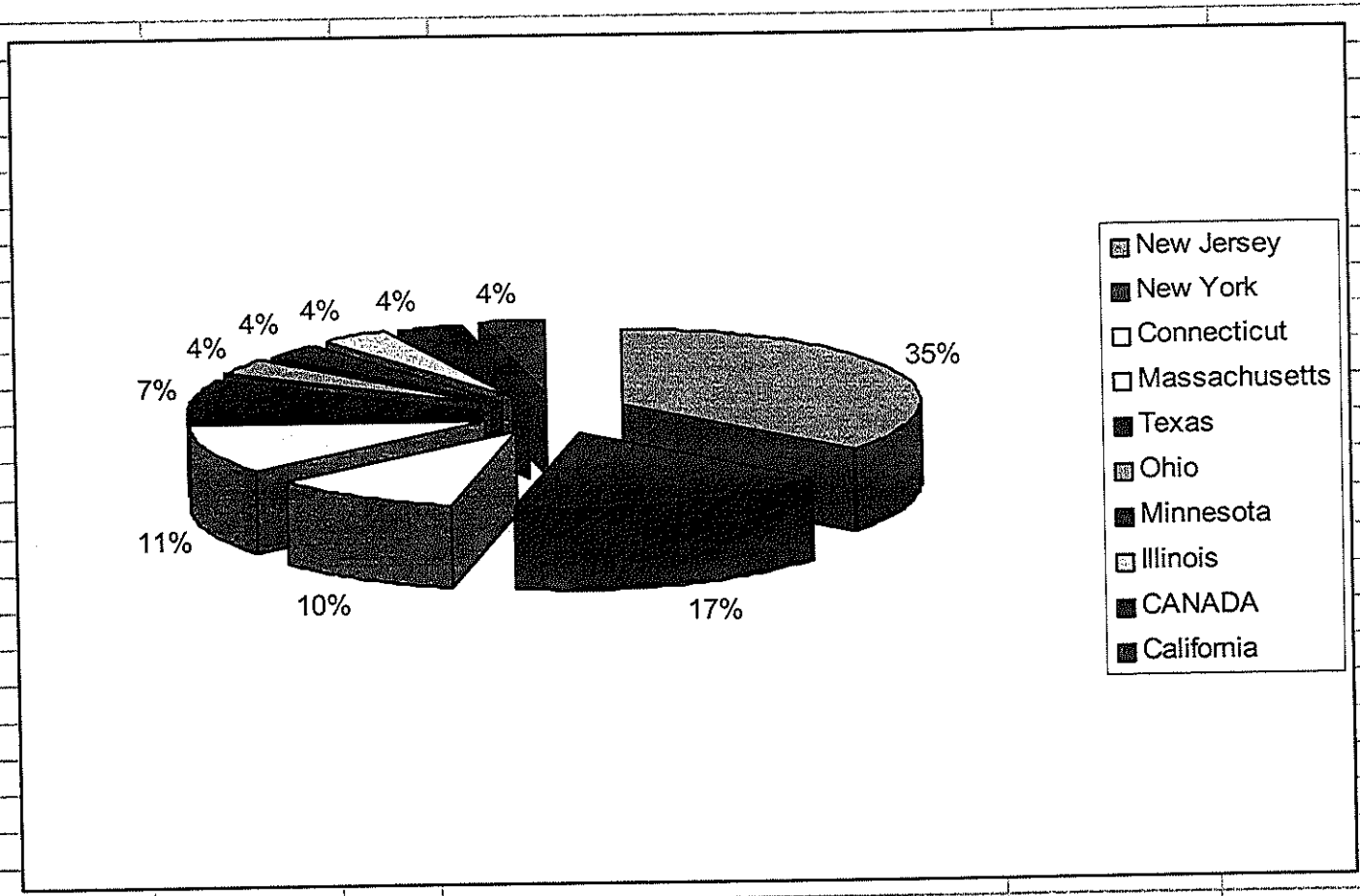
				CONFIRMED		UNCONFIRMED		
NO	VIN	MILEAGE	PROD DATE	HARNESS	COIL	TOTALED	INSPECTION PENDING	LOCATION
1	WVWPD63B41P[redacted]	15012	02/01	#1 Cylinder				NJ
2	WVWVD63B42E[redacted]	11000	-			Failure mode undefined- damage extensive		NJ
3	WVWVH63B53E[redacted]	2300	-				Engine fire	NY
4	WVWPD23BX1P[redacted]	23000	-			Failure mode undefined- damage extensive		CANADA
5	WVWPD63B32E[redacted]	10381	3/02			Failure mode undefined- damage extensive		NJ
6	WVWAC63B81P[redacted]	36000	05/00	#2 cylinder				NJ
7	WVWAC63BX1P[redacted]	28000	-				Engine Fire	OH
8	WVWVD63B32E[redacted]	10000	-	#1 Cylinder				NJ
9	WVWPD63B72P[redacted]	13000	-			Failure mode undefined- damage extensive		MA
10	WVWPD63B62E[redacted]	14486	04/02	#3 Cylinder				NJ
11	WVWPD63B32P[redacted]	17000	04/02	#4 Cylinder				CT
12	WVWPD63B42E[redacted]	12000	02/02			Failure mode undefined- damage extensive		IL
13	WVWPD63BX2P[redacted]	3749	-	#4 Cylinder				NY
14	WVWPD63B71P[redacted]	4000	02/01	#4 Cylinder	#4 Cyl	Unable to confirm coil failure mode.		TX
15	WVWAC63B51E[redacted]	1664	06/00	#1 Cylinder				MA
16	WVWPD63B72P[redacted]	14000	03/02	#1/#2 Cylinder		Unable to confirm coil failure mode.		MN
17	WVWPD63B41P[redacted]	41804	12/00			Failure mode undefined- damage extensive		TX
18	WVWPD63B52E[redacted]	9980	-			Failure mode undefined- damage extensive		-
19	WVWPD63B72E[redacted]	13000	NA			Failure mode undefined- damage extensive		MA
20	WVWVD63B91E[redacted]	36000	NA			Failure mode undefined- damage extensive		NY
21	WVWPD63B32E[redacted]	10191	03/02	#3 Cylinder		Failure mode undefined- damage extensive		NJ
22	WVWPD63BX2E[redacted]	13000	07-01			Failure mode undefined- damage extensive		NJ
23	WVWPD63B63[redacted]	17000	08-02			Failure mode undefined- damage extensive		NY
	23 CASES	**11625.04**		**9 CONFIRMED**		**14 CASES -EXTENSIVE DAMAGE**		
		AVG MILES		**CASES**				
	AUDI							
1	WAULC68E12A[redacted]	5971	-	#2 Cylinder				CT
2	WAULC68E92A[redacted]	8310	-			Failure mode undefined- damage extensive		NY
3	WAULC68E82A[redacted]	12000	04/02			Failure mode undefined- damage extensive		CT
4	WAULC68E92A[redacted]	-	-			Failure mode undefined- damage extensive		NJ
5	WAUJC68E92A[redacted]	13255	04/02	#3 Cylinder				NJ
6	WAUDC68D11A[redacted]	35000	NA			Failure mode undefined- damage extensive		CA
	6 CASES	**12422.67**		**0 CONFIRMED**		**6 CASES -EXTENSIVE DAMAGE**		

9752 – Engine Wiring Loom - PASSAT/Audi A4 - MJ01-03 VWoA / AoA

RK CASES- VW & AUDI 1.8T LONGITUDINAL MOUNT

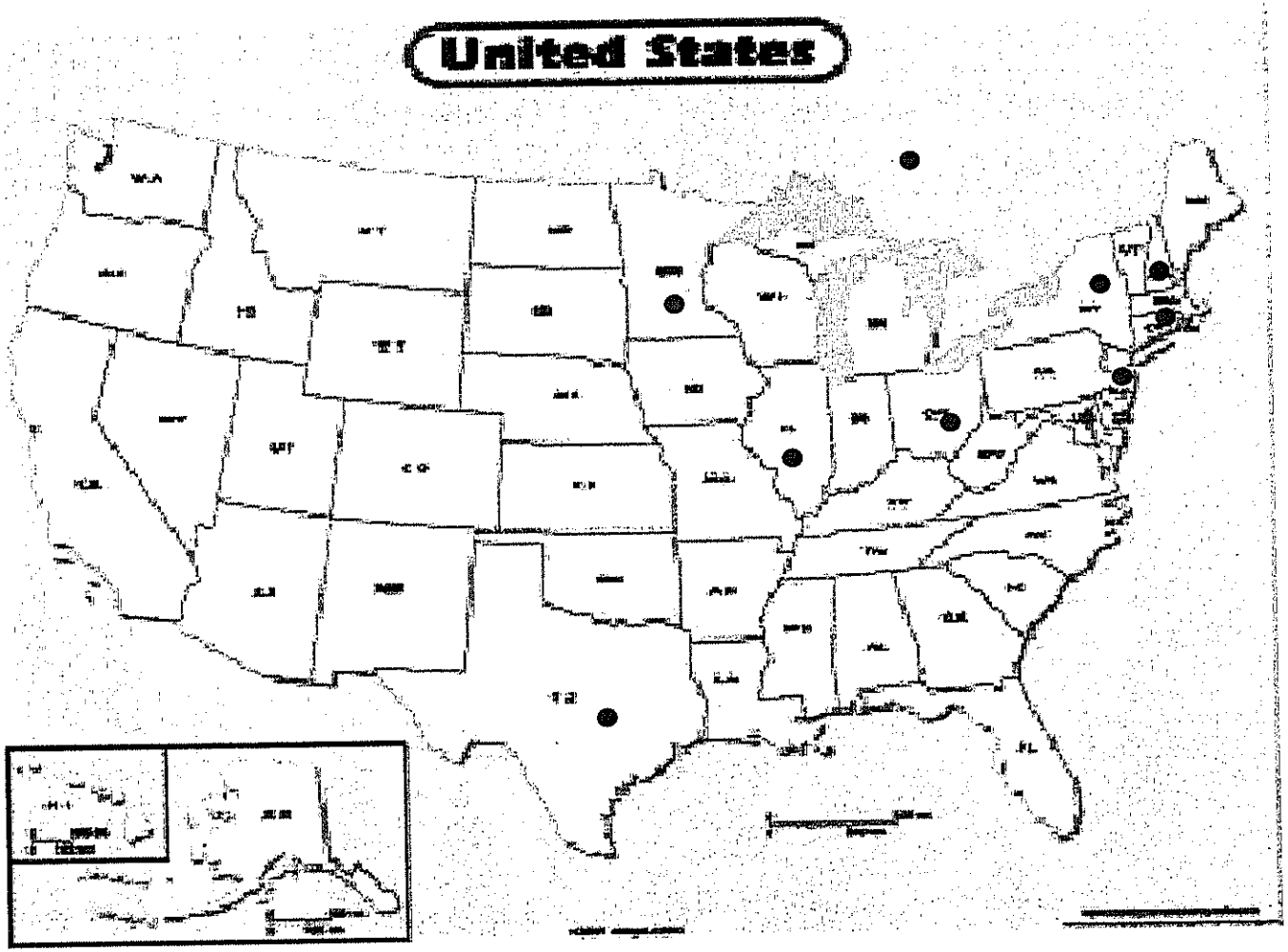
New Jersey	10
New York	5
Connecticut	3
Massachusetts	3
Texas	2
Ohio	1
Minnesota	1
Illinois	1
CANADA	1
California	1
TOTAL	28

COLD CLIMATE	93%
WARM CLIMATE	7%



RK CASES- VW & AUDI 1.8T LONGITUDINAL MOUNT

VWoA / AoA



FIRE DISTRIBUTION

STATE	CASES
New Jersey	10 cases
New York	5 cases
Connecticut	3 cases
Massachusetts	3 cases
Texas	2
Ohio	1
Minnesota	1
Illinois	1
Canada	1
California	1

9752 – Engine Wiring Loom - PASSAT/Audi A4 - MJ01-03 VWoA / A●A

VEHICLE INSPECTION @ SEACOAST VW

VIN: WVWPD63B32P[redacted] Production: 04/02
Mileage: 17000

Vehicle repair history- 5K,10K, and radio repairs. No MIL concerns.

History: 3/10/03- Vehicle was towed into dealership because of a flashing MIL
3/11/03- Technician cold started vehicle and drove into shop with the engine missing and the MIL flashing. Opened hood and removed engine cover. Coil #4 suddenly started glowing red at the head of the coil. Sparks immediately started shooting from the hole (above the chip) and continued for 40 seconds. Sparks stopped, tech removed connector and when attempting to remove the coil, the coil head came apart.

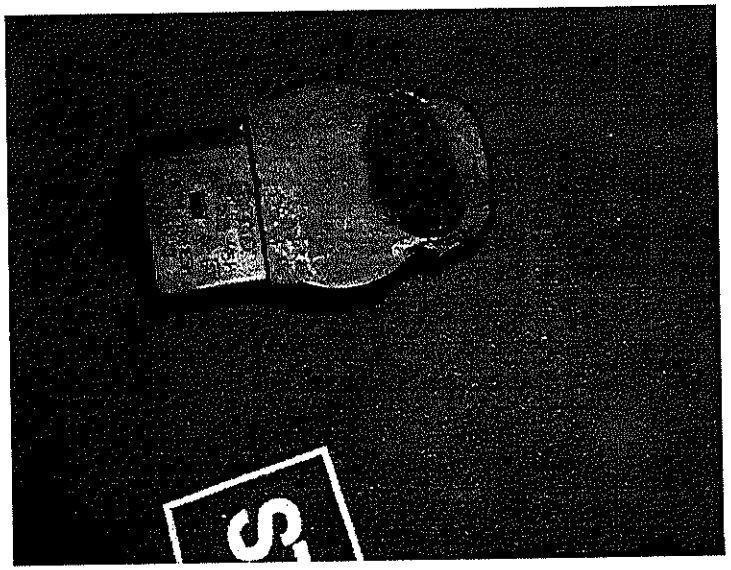
3/19/03- Engineering Inspection of Vehicle:
Harness connectors to coil packs appear to have moisture marks on the face of the connector. Seacoast will remove harness and send to A.H.. New J coils were installed and the vehicle was tested at cold start and warm idling. Data logs from Fluke meter are saved as : Seacoast-cold start X and Seacoast-coldstart-day2-2-X.

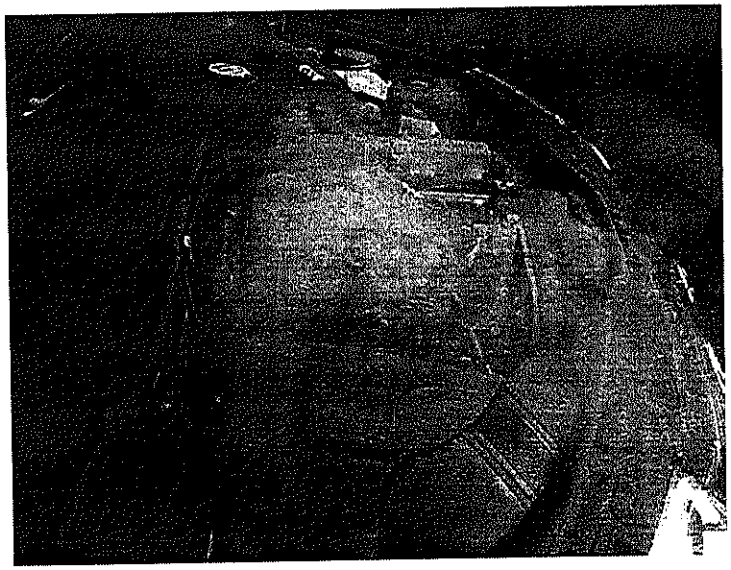
A brand new 2003 Passat was also tested to confirm noise in the harness. Noise was found but it was lacking the spikes associated with moisture in the harness.

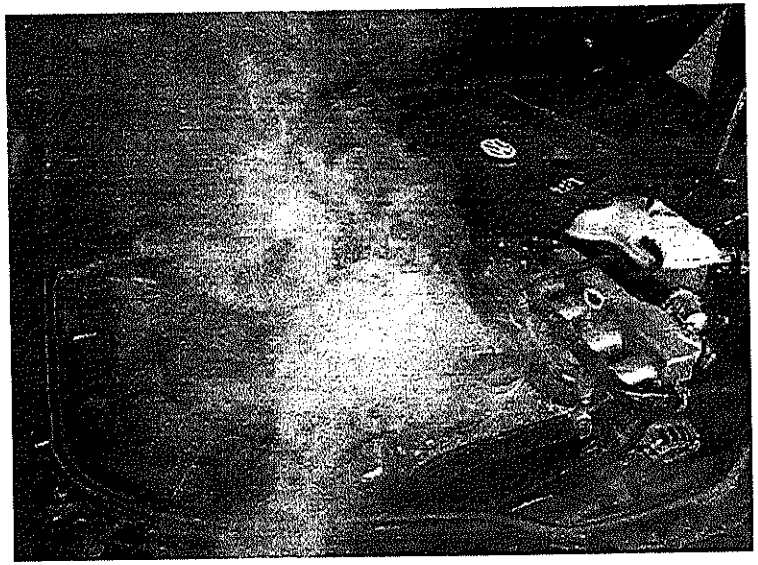
See attached pictures for coil failure.

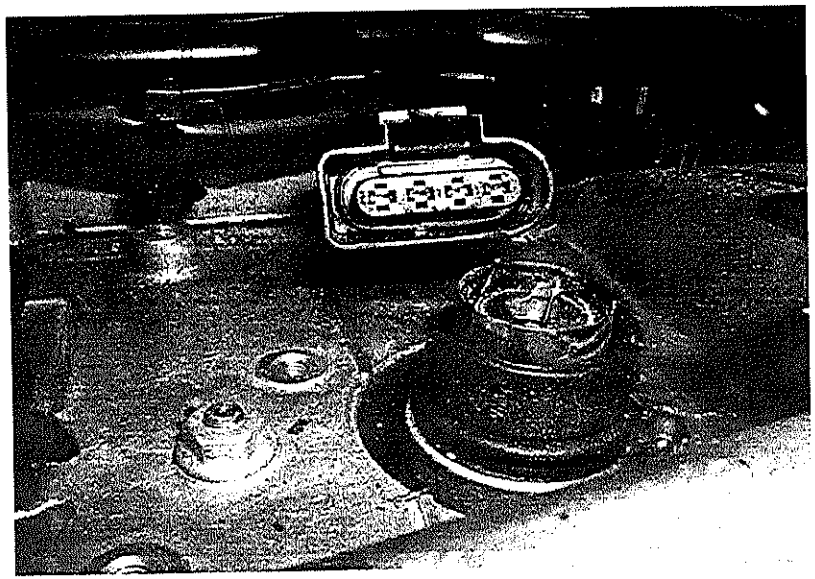
Harness Information: 3B1 971 072 AD LEONI (S.AFRICA) TAB: 010 508 QC LEVEL: 02-03-01

9752 – Engine Wiring Loom - PASSAT/Audi A4 - MJ01-03 VWoA / AoA









9752 – Engine Wiring Loom - PASSAT/Audi A4 - MJ01-03 VWoA / AoA

Lab Results from previous case, VIN WVWPD63B32P[redacted]

From: Weishaupt, Willi-Andreas
To: Laimonis, Tory
Cc: Kavanagh, James (VWoA)
Subject: WG: 11-Z-03-1721 Analyse von Leitungssträngen hinsichtlich des verwendeten Isoöationsmaterial
Sent: Thu 7/10/2003 3:50 AM

Tory,
this is the result of the lab!
Greetings Willi

-----Ursprüngliche Nachricht-----
Von: Scholz, Karl-Heinz
Gesendet am: Donnerstag, 10. Juli 2003 08:58
An: Weishaupt, Willi-Andreas
Cc: Schmidt, Lothar; Schwarzer, Peter, Dr.
Betreff: 11-Z-03-1721 Analyse von Leitungssträngen hinsichtlich des verwendeten Isoöationsmaterial

Hallo H. Weishaupt,
wie telefonisch abgesprochen sende ich Ihnen auf diesem Weg eine kleine Notiz zu der Untersuchung an den Einzelleitungen von dem folgenden Fahrzeug:
Fahrgestellnummer: PD 63B32P438380; 17.000 Meilen, Baudatum: 04/02, VWoA
MoVo 3B1. 971.072 AD= Hersteller: Fa. Leoni S.A., Fertigung: 02.03.01, Werkstoff Isolation Einzelleitung: PVC weichgemacht mit Phthalsäureester
Fehlerbeschreibung Fahrzeug: Misfire, RK-Fail, Zylinder 4, geringe Schäden am Fahrzeug

Bei den Belägen auf der Kupferlitze, die nach Entfernen der Isolation feststellbar sind, handelt es sich um Rückstände des Isolationswerkstoffes PVC. Bei dem "verfärbten" Bereich konnte mit Hilfe der FTIR-Technik PVC-Phthalsäureester nachgewiesen werden. Auch bei der EDAX-Analyse wurde Chlor nachgewiesen. Bei mituntersuchten nicht verfärbten Bereichen wurde nur eine geringe Belegung des Kupfers mit PVC festgestellt.
Anbei ist ein Word-Dokument mit REM-Aufnahmen der "verfärbten" Bereiche beigefügt.

REM PVC-Beläge auf Kupferdräht...

Ich hoffe, ich konnte mit diesen Informationen weiterhelfen.
Gruß
Karl-Heinz Scholz
K-QS-31/SEB
Tel. 25751

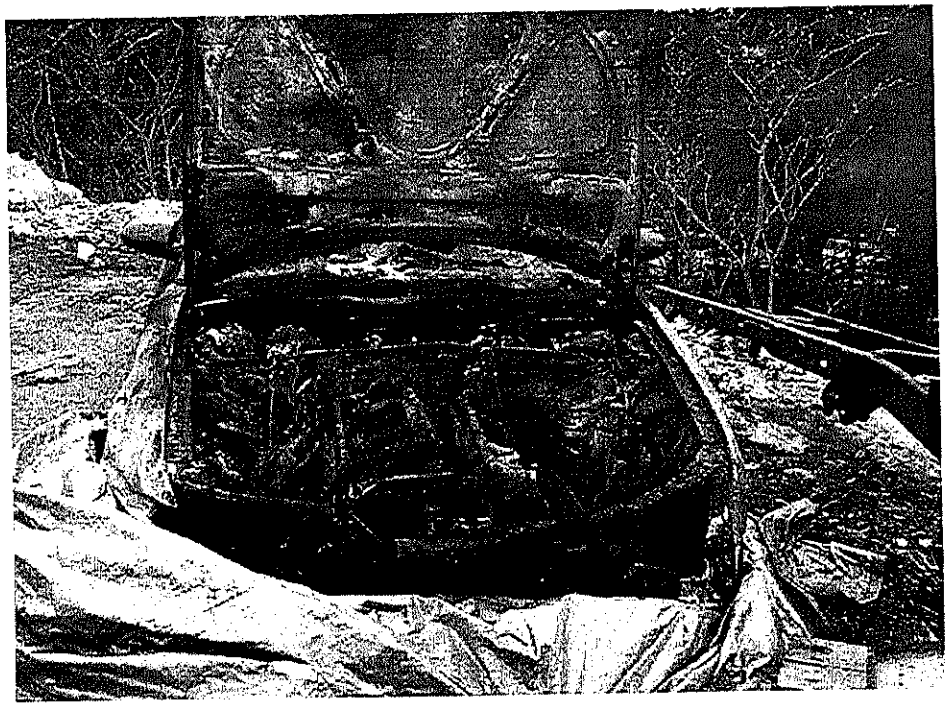
VOLKSWAGEN AG		Seite 1 von 1
Konzern-Qualitätssicherung Zentrallabor K-QS-31, 1437/1	Laborbericht 11-Z-03-1721	

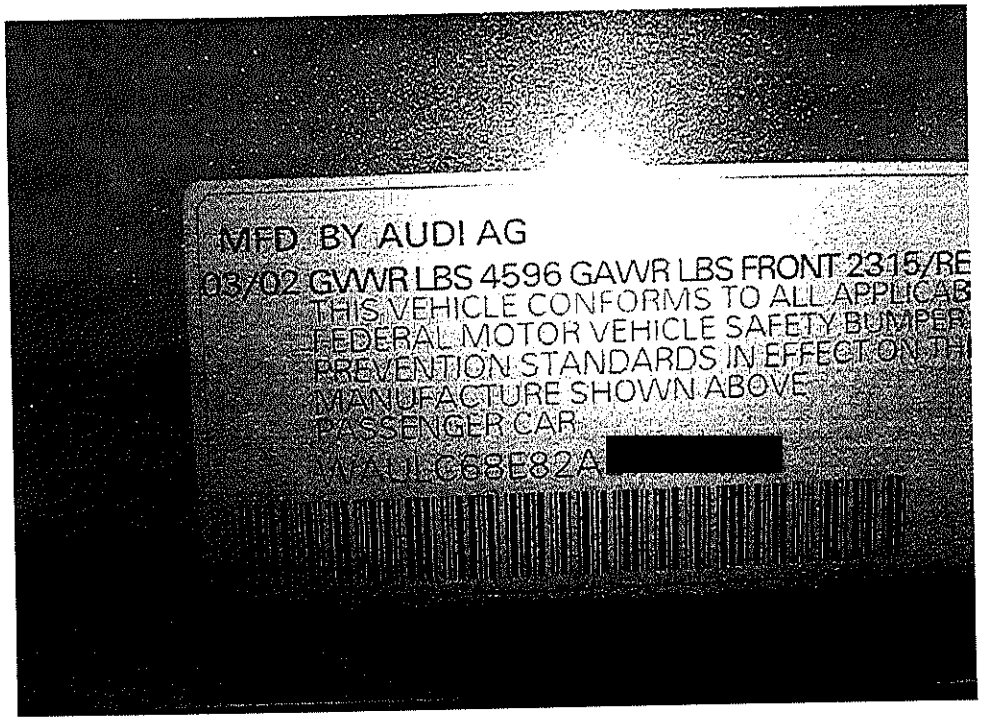
9752 – Engine Wiring Loom - PASSAT/Audi A4 - MJ01-03 VWoA / AoA

AUDI ENGINE FIRE @ DOVER AUTO WORLD

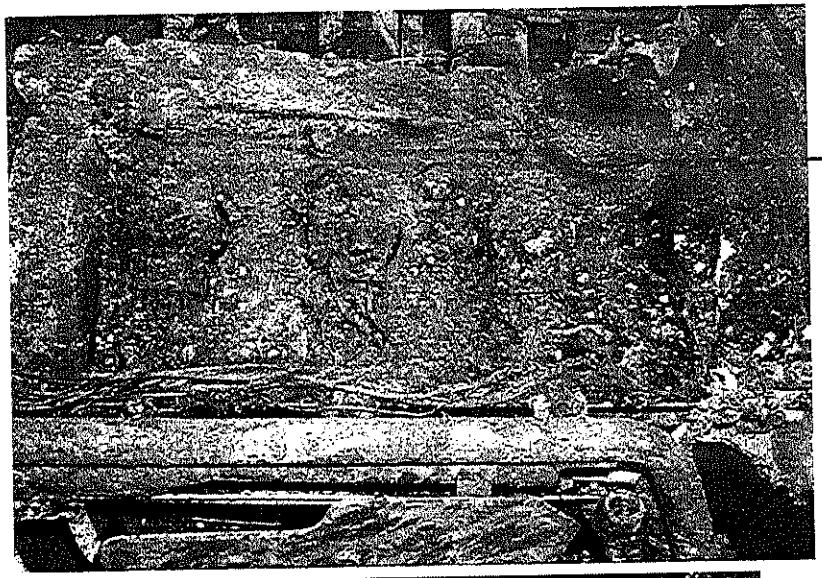
Inspected a 2002 Audi A4 at Dover Auto World VIN: WAULC68E82A[redacted]
Mileage:12000 Build date: 04/02

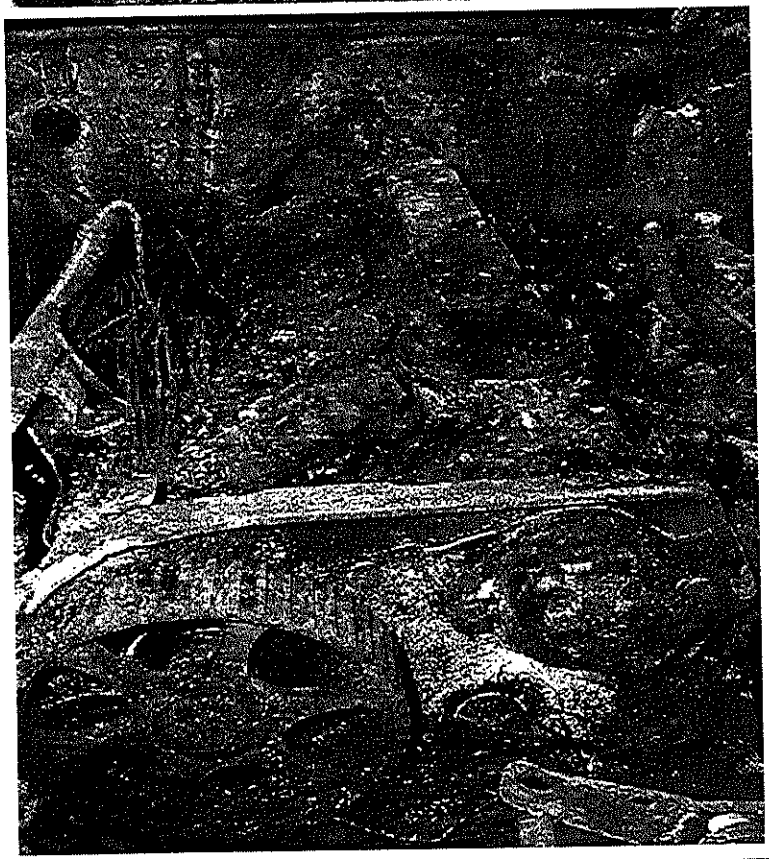
Inspection reveals that the #1 coil may have failed (see pictures- head of coil appears to have separated from the main body-A typical failure mode when the secondary windings fail) and caused a RK. Pat (SM) was unable to come up with the customer statements on the case and will contact me when the dealer locates the files. They will also inspect the wiring harness on TTs and contact me when any issues are found.

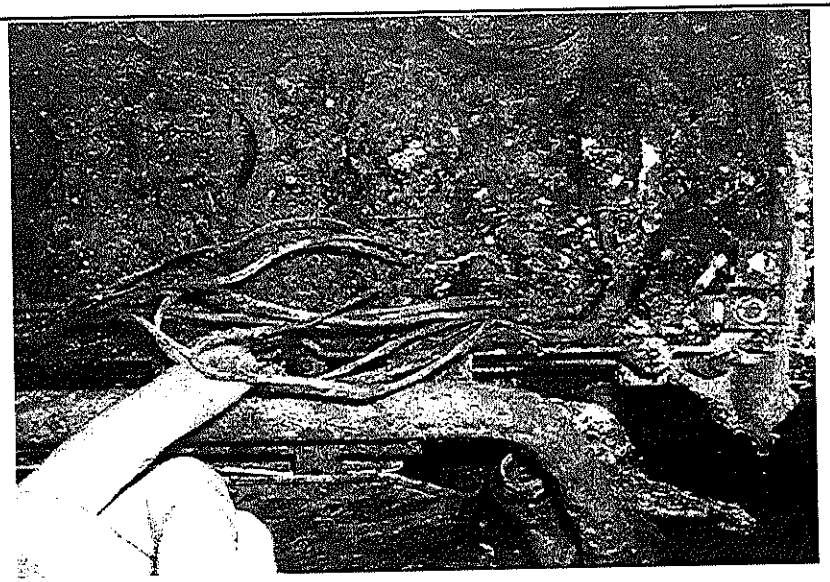




VWoA / AoA







9752 – Engine Wiring Loom - PASSAT/Audi A4 - MJ01-03 VWoA / AoA

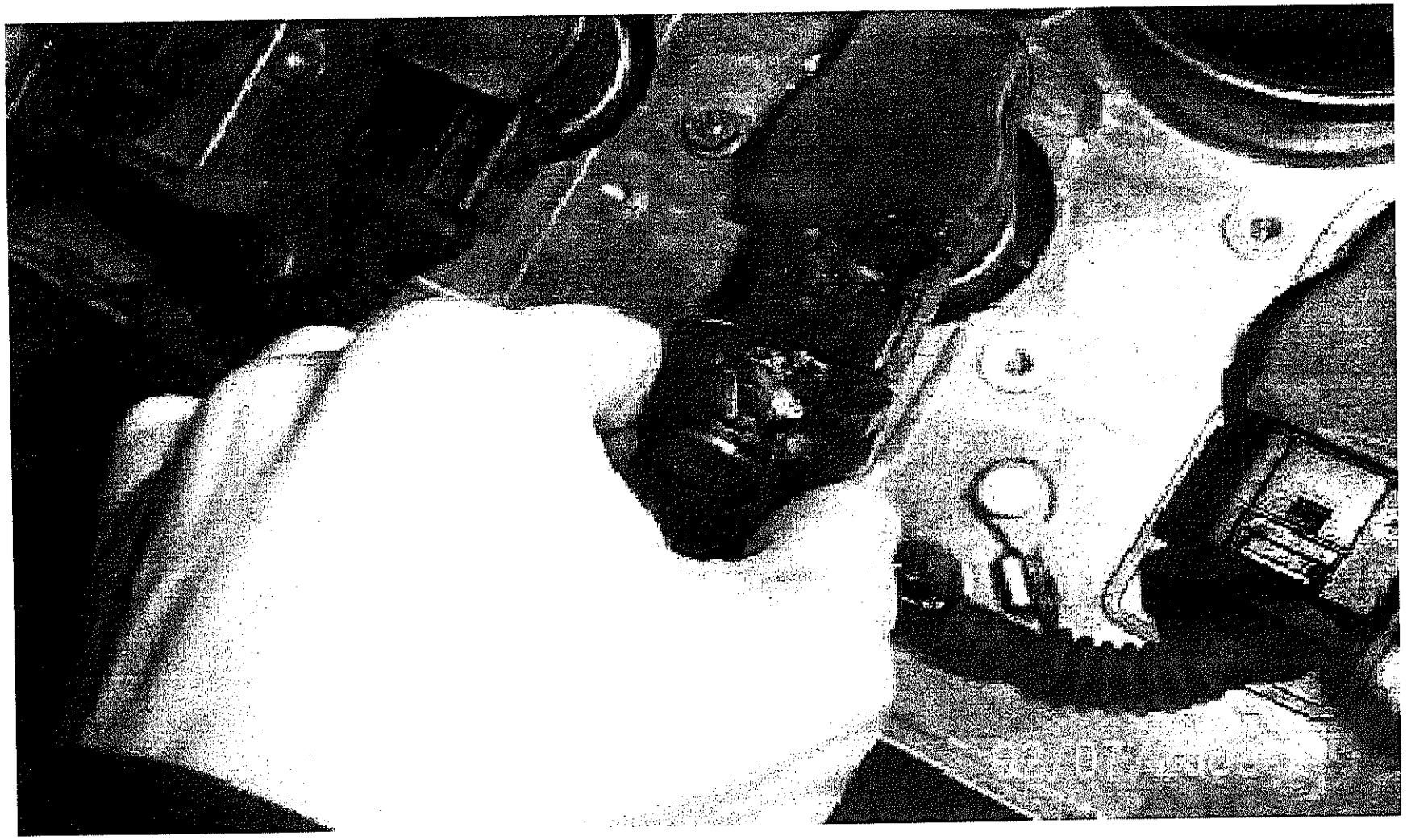
VIN: WVWPD63B41P[redacted] Production: 12/01/00
Mileage: 41804

Vehicle repair history- Normal service history w/ no MIL concerns.

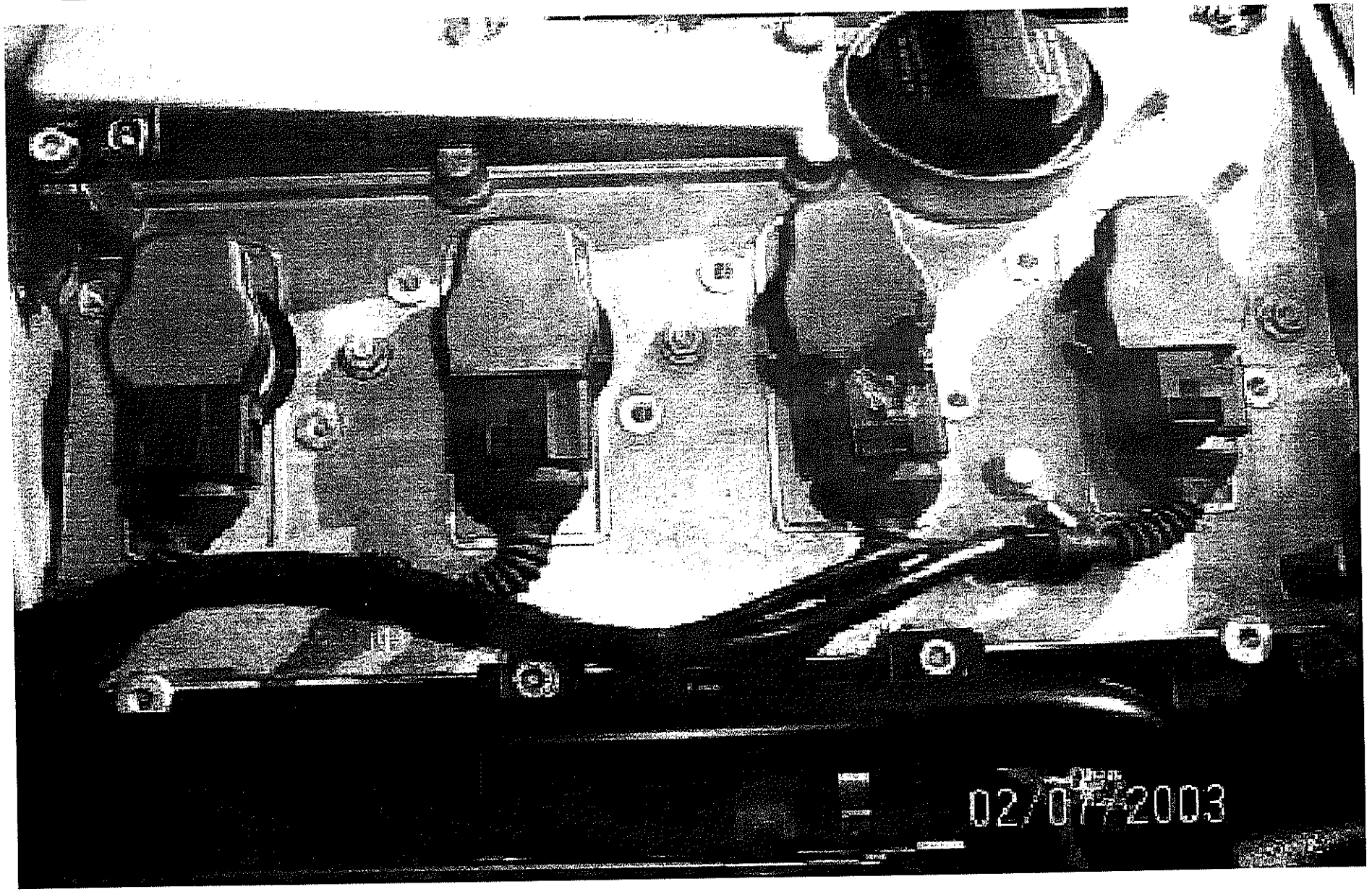
2/2/2003-

Inspection reveals that the #2 coil pack connector shorted internally while in operation. The internal pin short resulted in smoke and fire which the customer extinguished. The following pictures verify the condition as a harness pin short not a coil failure due to the location of the burn. Coil fires usually result in a burn through above the chip near the back of the coil head not at the pin connector.

9752 – Engine Wiring Loom - PASSAT/Audi A4 - MJ01-03 VWoA / AoA



9752 – Engine Wiring Loom - PASSAT/Audi A4 - MJ01-03 VWoA / AoA



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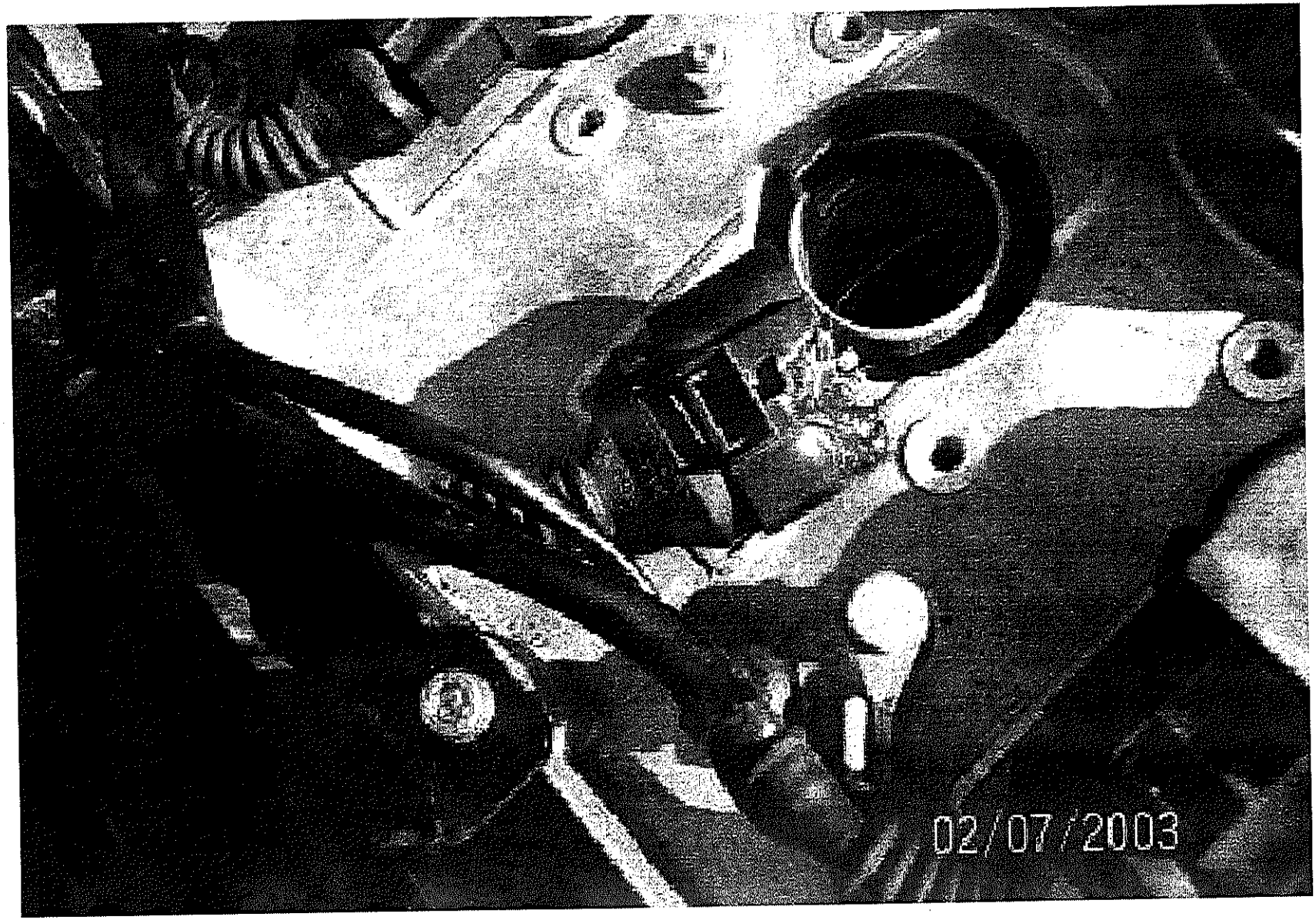

9752 – Engine Wiring Loom - PASSAT/Audi A4 - MJ01-03 VWoA / AoA

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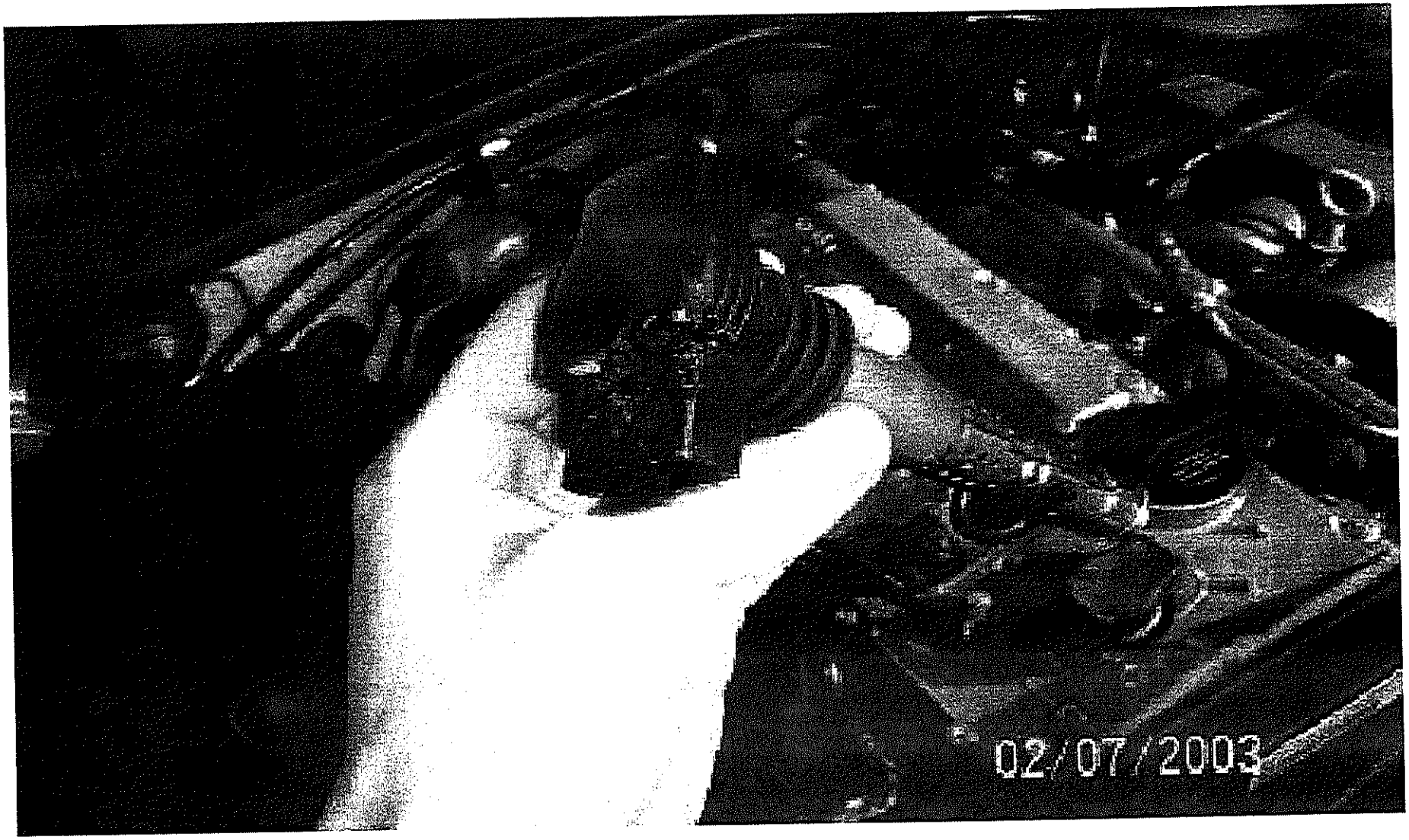


9752 – Engine Wiring Loom - PASSAT/Audi A4 - MJ01-03 VWoA / AoA

FAILURE ANALYSIS REPORT

DATE: 16/05/2006	**N.:** R060043R001	**TOTAL NUMBER OF PAGES:** 5
FROM: Piras A. Automotive		DEPT: AUTOMOTIVE DIRECT FAX: DIRECT PHONE:
TO: Mr. Giere - VW		ATTN: DEPT: FAX:
INT. COPY: Santagata G. / Spataro G. / Forte B./ Croci A.		EXT. COPY:
SUBJECT: FAILURE ANALYSIS REPORT		

Issued by :	Piras A.
Checked by :	Santagata G.

1) TEAM

Team is composed by: Santagata G./ Piras A.

2) PROBLEM DESCRIPTION AND DATA

Eldor product code	78230005
Eldor data code or reference	20F4 III 3 35/05
Customer reference	11-2006.03.27-f-015
RMA	84001396
Arrival data	11/04/2006
Origin of the part and people reference	Volkswagen – Mr. Giere
Part coming from ? Field, Factory, Motor Test, etc.	Field
How much km/h/cycle?	1000 Km
Engine used	WVWGK93C56P[redacted]
Customer defect	Feuchtigkeitsrückstände am Blech (viel, rötlich), Kurzschluss, -> ZL-> Eldor

3) CONTAINMENT ACTIONS

None

4) ROOT CAUSES:
A) VISUAL INSPECTION

The coil appear damaged in the connector area, photo 1.
In the surface of the long shield there is a unknown material, we suppose that this material coming from the motor plug well.

Photo 1

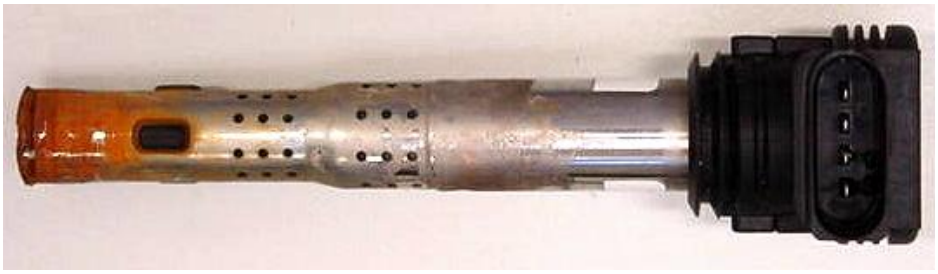


Photo 2,3, shows the unknown material on the surface of the long shield.

Photo 2

Photo 3

Follow, the material has been scratched of the surface from long shield.
Not residual remaining of the material in the surface.
The residual was not coming from the external surface of the coil.
Photo 3, 4, show the long shield clean, after the removing of the unknown material.

Photo 4

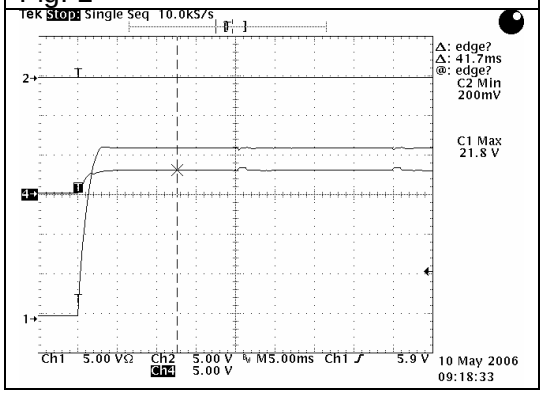
Photo 5

B) ELECTRICAL TEST

The pencil coil was electrically verified in Eldor in the follow condition Vbatt =14V @ IP=0A; Freq.= 50Hz; IP = 15A; Load 1M//25pF.

The coil don't work, fig. 1.

Fig. 1



C) PRELIMINARY X-RAY

The X-ray, show the pencil very damaged, photo 6.

Is present some soldering material due to the high temperature reach by the pcb in pin1 area, photo 7.

Photo 7

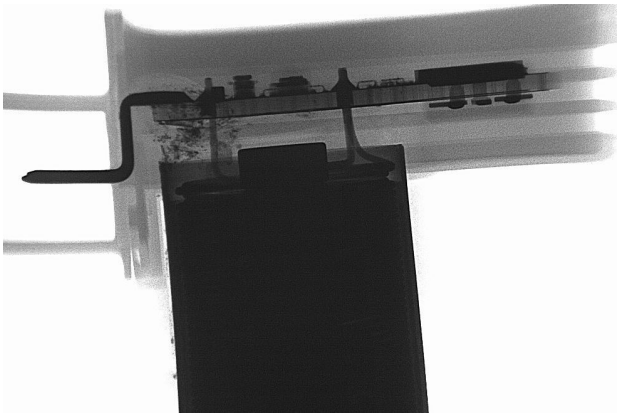
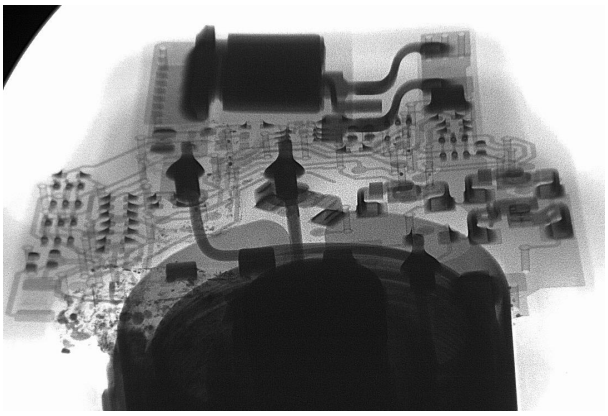


Photo 7



D) ANALYSIS OF WINDINGS AND ELECTRONIC

The Igbt was checked with a sure good electronic and windings: Ok, fig. 2.

The windings were tested with a sure good electronic and IGBT: Ok, fig, 3.

Fig. 2

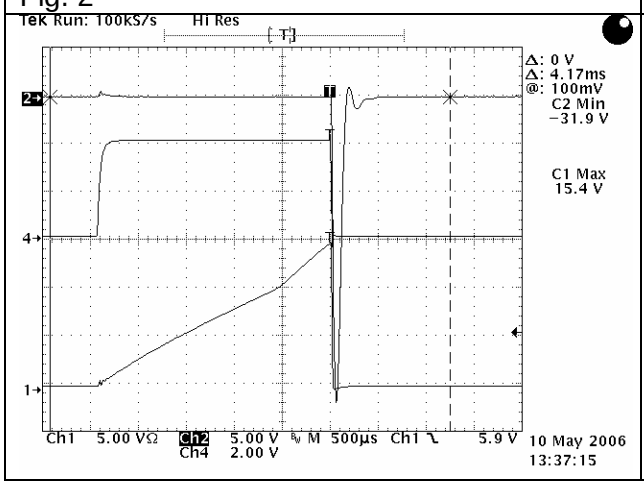
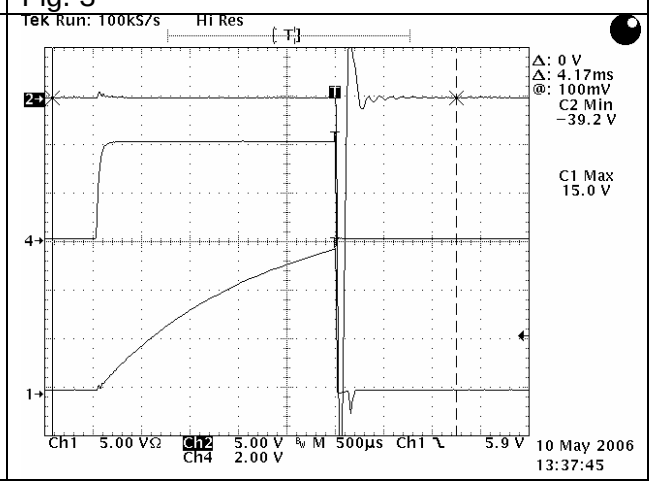


Fig. 3



The X-ray, show the damaged area on the electronic, photo 8.
Photo 9, show the burn area on the bottom side of the pcb.

Photo 8

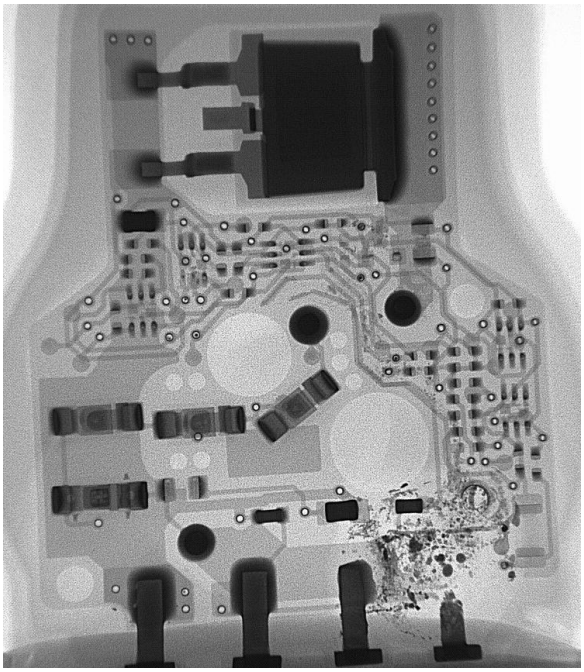


Photo 9

The long shield was extract from the pencil for to check the primary windings : the plastic tape results very damaged, but not contact point are observed between the primary wire and the shield, photo 10.

Photo 10

On the external surface of the shield it was observed the oxidation, see photo 11.
On the internal surface of the shield it was observed the oxidation, photo 12.
No contact point were observed in the surface of the shield.

Photo 11

Photo 12

On the internal long shield there is the oxidation residual coming from the internal shield, see photo 13.

Photo 13

E) DEFECT
Failure analysis data :

- Windings work normally.
- Igbt work normally.
- Electronic not again available for further analysis because to much burned.
- No discharge point observed between the primary windings and the shield.
- Oxidation was observed on the surface of the shield.

Failure cause hypothesis:
Probably humidity penetration on the pcb that has determined the burning of the electronic.

5) CORRECTIVE ACTIONS
For humidity penetration:
Change of the head rubber in order to guarantee a better sealing between the plug well and the ambient area in all tolerances condition -> in wk 04/06.

6) CORRECTIVE ACTIONS IMPLEMENTATION
New FSI pencil coil Gen II with primary potted -> in wk 35/06.

7) PREVENT THE RECURRENCE
See point 5.

8) TEAM CONGRATULATION
Not applied.

8D Report

8D Reference R100416001 **Origin** Customer Claim
Plant Orsenigo
Step DZ - Closed **Origin doc.** R100416 **Prog.** 001
Opening Date 07/05/2010
Notes

D1 - Establish the team

Names: CrottiV; MusioM; PirasA; SantagataG

D2 - Describe the problem

Problem description: PIN 1+2 weg thermisch beschädigt oder überlastet; sehr stärke Feuchtigkeitsrückstände am Blech;

Claim Typology	Eldor Product Code	Eldor data code	Returned Q.ty	Arrival date	RMA N°	Warranty
Technical	78230005	1 22 05	1	14/05/2010	84003690	NO

Customer	Customer ref. code	Customer ref. people
0000001159 - VOLKSWAGEN AG	11-2010.05.06-f-004	Kocali

Customer Claim ID	11-2010.05.06-f-004	Engine	WVWAK73C26F[redacted]	Customer P/N	07K 905 715

Part coming from	km / h / cycle	Notes
FIELD		

D3 - Implement interim (containment) actions

Activities: N.A.
Responsible: N.A. **Date:**

D4 - Root cause analysis and identification

- (●) Complete Failure Analysis
- ( ) Fast Failure Analysis
- ( ) Other activities to be performed for analysis

} ref. IS360066EE Failure Analysis Methodology

Root Cause Analysis Techniques:

See enclosure document: R100416R001.doc

Root cause identified: humidity penetration on the pcb that has determined the burning of the pcb.

Temporal delim. of fail. n.a.

D5 - Choose corrective actions

See Action Plan: 8D100117 Starting new FSI pencil coil Gen II with primary potted.

D6 - Validate corrective actions (effectiveness verification)

Responsible: ScafidiG **Planned date:** 09/01/2007 **Actual date:** 09/01/2007

Final result:
- (●) Action closed and effective
- ( ) Action Closed but not effective

Further actions, if any:
n.a.

D7 - Prevent recurrence

Preventive action for prevent re-currence general description
n.a.

D8 - Congratulate the team

n.a.

FAILURE ANALYSIS REPORT

DATE/ DATUM: **24/06/2010**	**N.:** R100416R001	**TOTAL NUMBER OF PAGES:** 2 SEITEN N.
FROM: VOM: Piras A.		DEPT: ABT.
TO: FÜR: Mr. Kocali		ATTN:
INT. COPY: Santagata G. / Crotti V. / Bianchi A. / Musio M.		EXT. COPY:
SUBJECT: TEMA: Failure Analysis Report		

ISSUED BY: (Herausgegeben):	Piras A.
CHECKED BY:	Crotti V.

1) VISUAL INSPECTION
(Sichtkontrolle)
The coil received is too much burnt on the head side, photo 1, 2.
Pins 1 and 2, on the connector LV, are missing;
The external surface of the shield with oxidation signs, photo 3.

Photo 1

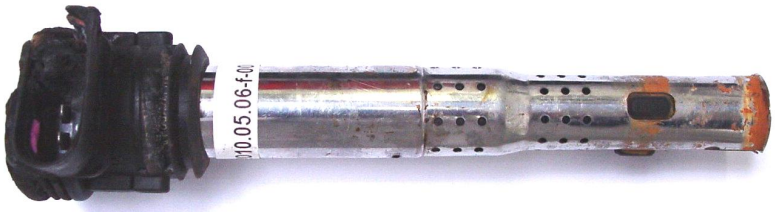


Photo 2

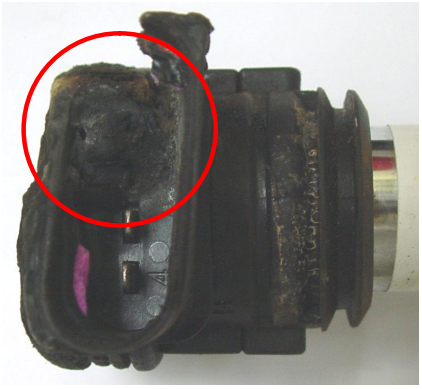
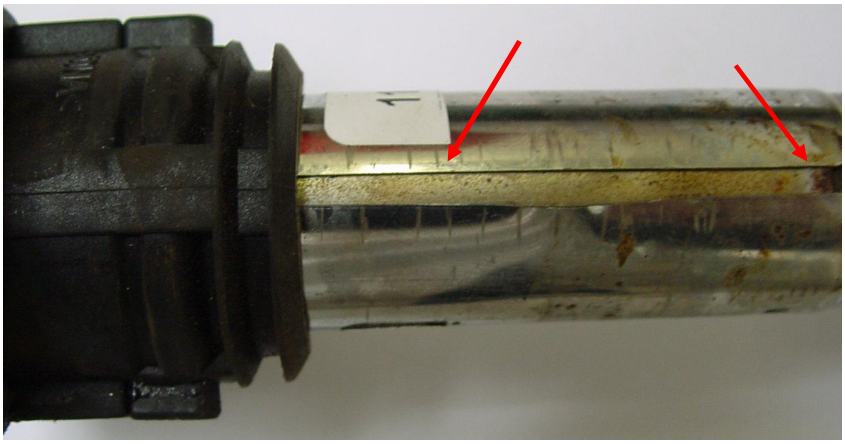


Photo 3



2) ELECTRICAL TEST
(Elektrische Prüfung)
The electrical check has been not possible, the coil is too much burnt, and pins 1 and 2 on the connector LV are missing;

3) X-RAY INSPECTION
(Röntgen-Untersuchung)
The X-ray, show the pencil coil very damaged on the pcb, photo 4, 5.

Photo 4

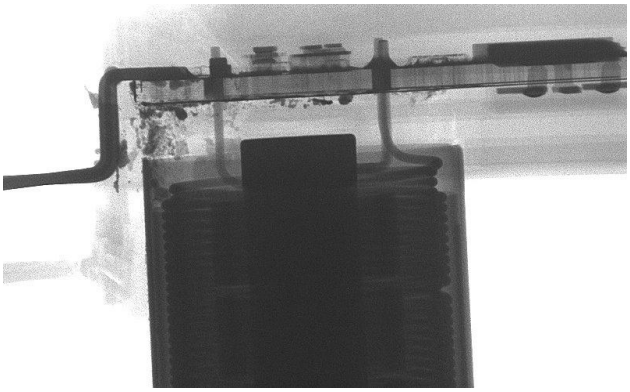
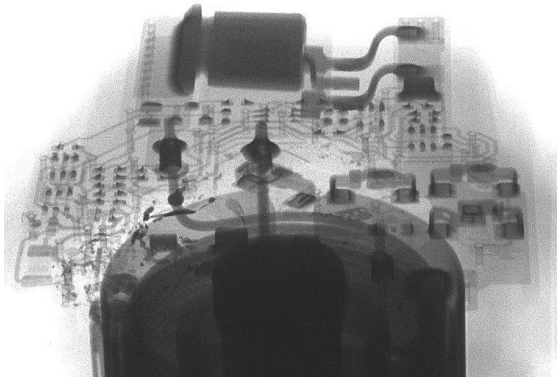


Photo 5



4) ELECTRICAL TEST AT HIGH AND LOW TEMPERATURE
(Elektrische Prüfung an hohe und niedrige Temperaturen)
None;

5) ANALYSIS OF WINDINGS AND ELECTRONIC AFTER CUT
(Analyse der Wicklungen und Elelectronik nach Öffnung des Teils)
None;

6) OTHER
(Andere)
None;

DEFECT
(Defekt)
Device is too much burnt.
The internal surface is much burnt and in the connector LV missing the pin 1 and 2.

Failure cause hypothesis:
The level of damaging of the pcb is too high for perform the analysis but with very probability the defect is due to humidity penetration on the pcb that has determined the burning of the pcb.

Responsibility of the defect
(Defekt Verantwortung)

Eldor	X
Customer / Kunde	
No trouble found - Part ok / kein defekt erfunden - teil i.o.	
Impossible to define / Unmöglich zu definieren	

Ignition Coil / Wiring Harness Replacements

- **Dealer Complaint:**
  - Replacing ignition coils under the P1 campaign may lead to excessive engine wire harness replacements
- **Workshop Findings:**
  - Melted ignition coils result in melted wiring harness connectors; Melted wiring harness connectors result in wiring harness replacement
- **Analysis:**
  - A failed ignition coil can melt and damage the connector on the engine wiring harness
  - Failed ignition coils (no external damage) do not require the replacement of the wiring harness
- **Overview Warranty Data (SAGA):**
  - Example of one high volume engine included in P1 Campaign for MY 2006 (Jetta and Passat)

MY 2006 Jetta and Passat (BPY Engine)					
	Vehicle Population	Harness Replacements (not related to ignition coil failures)	Coil/Harness Replacement (related to ignition coil failures)	Total Harnesses Replaced	R/1000
Passat (BPY)	54,217	55	75	130	2.40
Jetta (BPY)	11,935	10	20	30	2.51

- **Conclusion / Recommendation**
  - Wire harness replacements along with ignition coils were only needed when melting of the coil occurred
  - The wire harnesses not replaced with coils were due to bad connectors, shorted wires, broken or chafed wires from outside influence and did not point to a specific concern
  - **P1 recall campaign will replace coils proactively resulting in less melting occurrences thus resulting in lower number of wire harness replacements**

07 Pass
2,0T

Dealer:	**USA 444 08286**	**Claim no.:**	**36852 / 01**		
		DMS claim number:	36852		
Claim type:	1-10 Warranty Vehicle Warranty	Case number:			
Sales model:	3C55K6 Passat Wag. NAR 14	TPL number:			
Vehicle ID no.:	**WVWLK73CX7E[redacted]**	Engine number:	BPY	Engine plant: G	060214
Manufacturer:	VOLKSWAGEN PKW	Gearbox number:	HRN 0047856		
Delivery date:	11/16/2006	Production date:	03/02/2006		
DMS delivery:		Production plant:	VOLKSWAGEN AG, EMDEN		
Reception date:	03/29/2008	Warranty limits (days):	499		
Repair completion date:		03/31/2008	Mileage Km/Miles:	16982	

Comment claim / hand written comment:
BOM VENDOR CODE NOT RECONIZED

Entry date:	04/02/2008
Date of print:	04/08/2008
Printing user:	GBLACKADAR
Name of user:	BLACKADAR

Service no.:	2820 Ignition coil	**Tow in:**	**No**	Repair code:	2
Damage code:	0040 ELECTRICAL FAULT	Damage location:		Parts manufacturer:	K21
Fitted part:	**07K 905 715 D IGNIT.COIL**	**Quantity:**	**1,00**		
Damage causing part:	A	Quantity:			
Partscheckroom result:		**Dispatch type:**	**Parts Logistics**		
Parts recipient importer:	03.06 EE1	**Parts recipient manufacturer:**			

VW Warranty Test Center : GENERAL EMMISIONS
3800 Hamlin Rd., Auburn Hills
MI 48326

EE1

Teileverbleib Partner Entsorgung durch den Partner

[redacted]

V0100 USA4440828636852 0120080402

83151

1 plug
Firing prog - Same.

Head R/R - 15610

P0300 - 16965 (H)
P0301 -
P1545 (F)

TEST DATE
SEP 18 2008
TOM MILES

NT
Melted
(Pic)

736852

PRINCETON

Route 206

736852

959 ROUTE 206 PRINCETON, NJ 08540
(609) 688-3100 FAX (609) 688-3191

1.6

RECOMMENDED SERVICES

OPERATION	OPERATION DESCRIPTION	MO/MI	TOTAL	OPERATION	OPERATION DESCRIPTION	MO/MI	TOTAL
	Dn 0939						

16,983

SERVICE HISTORY

DATE	REPAIR ORDER	MILEAGE	ADVISOR	TECHNICIAN	TYPE	OPERATION	OPERATION DESCRIPTION
02/11/08	721815	17486	2778	8384	I	75VKZ04	VWcert INSPECTION
				999	W	75VKZ05	XU CLAIM FOR CPO INS
				8384	I	01VKZ020	20000 MILE SERVICE
				8384	I	75VKZ07	W/W INSERTS
				8384	W	09VKZ	FUEL SYSTEM
				8384	I	61VKZ	EXTERIOR TRIM

SALESPERSON NO. S E R V I C E

REPLACED PARTS REQUESTED BY CUSTOMER ☐ YES ☐ NO

ALL PARTS ARE NEW UNLESS OTHERWISE INDICATED

VEHICLE I.D. NO. WVWLK73CX7E[redacted]
YEAR/MAKE/MODEL 07/VOLKSWAGEN/PASSAT 2.0 WGN/4 DOOR
PRODUCTION DATE
STOCK NO. AV10915P
LICENSE NO.
R. O. NO. 736852

[redacted] R NO. 100
SERVICE CONTRACT
DELIVERY DATE
DELIVERY MILES 16,910
SELLING RETAILER NO.
R. O. DATE 03/29/08

FLEMINGTON, NJ [redacted] ACK/BLK LTHH
CONTRACT NO.
EXPIRATION DATE
EXPIRATION MILES
TAG NO. 222

TURBO | M/MC VKZZ | AIR COND. | P. S. | TRANS A | MILEAGE 16,982 | ADVISOR NO. 2778 | ADVISOR DINO FERRANTE

[redacted]

TIME RECEIVED 10:18am | DATE/TIME PROMISED 04/02/08 08:00am | PRIORITY 5

I hereby authorize the repair work herein set forth to be done by you, together with the furnishing by you of the necessary parts and other material for such repair, and agree: that you are not responsible for any delays caused by unavailability or delayed availability of parts or material for any reason; that you neither assume nor authorize any other person to assume for you any liability in connection with such repair; that you shall not be responsible for loss or damage to the above vehicle, or articles left therein; in case of fire, theft or other cause beyond your control; that an express mechanic's lien is hereby acknowledged on the ab[redacted]ve vehicle on streets, highwa[redacted]

X [redacted]

APPOINTMENT ☐ Yes ☒ No

LABOR RATE

JOB

CUSTOMER STATES LABOR INSTRUCTIONS

ORIGINAL CUSTOMER ESTIMATE: TOTAL

X ____________

1 W 10VKZ *DRIVEABILITY*
SALES STATES VEHICLE TOWED IN DOES NOT START
JUST CRANKS CHECK AND ADVISE

(2) 03 Recall

VENDOR CODE: B O M
PART NUMBER: 101 905 631 D
MANUFACTURE: BOSCH
DATE: 3/31/08 SIGNATURE:

VENDOR CODE: E E 1
PART NUMBER: 07K 905 715 A
MANUFACTURE:
DATE: 3/31/08 SIGNATURE:

AUTHORIZATION FOR REPAIRS
I hereby authorize the repair work herein set forth to be done along with the necessary material and agree that you are not responsible for loss or damage to vehicle or articles left in vehicle in case of fire, theft or any other cause beyond your control or for any delays caused by unavailability of parts or delays in parts shipments by the supplier or transporter. I hereby grant you and/or your employees permission to operate the vehicle herein described on streets, highways or elsewhere for the purpose of testing and/or inspection. An express mechanic's lien is hereby acknowledged on above vehicle to secure the amount of repairs hereto. The dealership is not responsible for damages from freezing due to lack of antifreeze.

DATE: ________ SIGNED: ________

PRELIMINARY ESTIMATE $ ________
AUTHORIZED BY X

	DATE	TIME	BY
REVISED ESTIMATE (1)			
REVISED ESTIMATE (2)			
REVISED ESTIMATE (3)			

I HEREBY ACKNOWLEDGE THAT I WAS NOTIFIED & GAVE ORAL APPROVAL OF THE ABOVE REVISED ESTIMATES:

X ________
CUSTOMER SIGNATURE

WAIVER OF ADVANCE ESTIMATE
I VOLUNTARILY REQUEST THAT REPAIRS BE PERFORMED ON MY VEHICLE WITHOUT AN ADVANCE ESTIMATE OF THEIR COST. BY SIGNING THIS FORM, I AUTHORIZE REASONABLE AND NECESSARY COST TO REMEDY THE PROBLEMS COMPLAINED OF UP TO A MAXIMUM OF $ ______ THE REPAIR SHOP MAY NOT EXCEED THIS AMOUNT WITHOUT MY WRITTEN OR ORAL CONSENT.

X ________
CUSTOMER SIGNATURE

EXCLUSION OF WARRANTIES
Any warranties on the parts and accessories sold hereby are made by the manufacturer. The undersigned purchaser understands and agrees that dealer makes no warranties of any kind, express or implied, and disclaims all warranties, including warranties of merchantability or fitness for a particular purpose, with regard to the parts and/or accessories purchased; and that in no event shall dealer be liable for incidental or consequential damages or commercial losses arising out of such purchase. The undersigned purchaser further agrees that the warranties excluded by dealer, include, but are not limited to any warranties that such parts and/or accessories are of merchantable quality or that they will enable any vehicle or any of its systems to perform with reasonable safety, efficiency, or comfort.

0109J736852

TECHNICIAN COPY

736852

PRINCETON VOLKSWAGEN

959 ROUTE 206 PRINCETON, NJ 08540
(609) 688-3100 FAX (609) 688-3191

AVWS736852

0109IAVWS736852

CUSTOMER NO.	ADVISOR	TAG NO.	INVOICE DATE	INVOICE NO.
100	DINO FERRANTE 2778	222	03/31/08	AVWS736852

LABOR RATE	LICENSE NO.	MILEAGE	COLOR	STOCK NO.
		16,982	BLACK/BLK L	AV10915P

[redacted]
FLEMINGTON, NJ [redacted]

YEAR / MAKE / MODEL	DELIVERY DATE	DELIVERY MILES
07/VOLKSWAGEN/PASSAT 2.0 WGN/4 DOOR		16,910

VEHICLE I.D. NO.	SELLING DEALER NO.	PRODUCTION DATE
W V W L K 7 3 C X 7 E [redacted]		

F. T. E. NO.	P. O. NO.	R. O. DATE
10		03/29/08

[redacted]

COMMENTS: MO: 16983

JOB# 1 CHARGES

LABOR

J# 1 10VKZ DRIVEABILITY HOURS: 2.45 TECH(S): 0939 8384 242.55

TECH#	DATE	START	FINISH	ACT	TIME	DESCRIPTION
8384	03/31/08	11.50	13.10	1.60	0.00	HOLD OTHER
0939	03/31/08	13.70	14.70	1.00	0.00	HOLD OTHER
0939	03/31/08	14.70	15.70	1.00	0.00	FINISHED
0939	03/31/08	0.00	0.00	0.00	2.45	OVERRIDE IN INVOICING
			TOTAL TECH TIME	3.60	2.45	

SALES STATES VEHICLE TOWED IN DOES NOT START
JUST CRANKS CHECK AND ADVISE
FOUND CAR WOULD NOT START. FOUND FUALT FOR MISFIRES.
FOUND COIL 4 MELTED. REMOVE ENGINE COVER AND REPLACE
DAMAGE COIL AND SPARK PLUG. CAR STILL WOULD NOT
START. USED WIRING DAIGRAMS AND FOUND FUSE 20 IN
ENGINE COMPARTENT BURNT. REPLACE FUSE ROAD TESTED AND
SET CODES CAR NOW RUNS CORRECTLY

CLAIM #	WARRANTY OP. CODES	FLAT HRS.	OTHER HRS.	FC	AUTH. CODE	CLAIM TYPE
36852A	28201920	0.40			282040BOM	110
36852A	66442000	0.50				
36852A	27060040	0.30				
36852A	01210004	0.10				
36852A	01320024	0.65				
36852A	01500000	0.50				

PARTS	QTY	FP	NUMBER	DESCRIPTION	U/COST	E/COST	U/PRICE	
	1		101-905-631-B	SPARK PLUG	9.30	9.30	15.50	15.50
	1	*	07K-905-715-D	IGNIT.COIL	18.84	18.84	31.40	31.40
	1		N-017-131-12	FLAT FUSE	0.42	0.42	0.70	0.70
					COST TOTAL	28.56		
						TOTAL - PARTS		47.60

JOB# 1 TOTALS

LABOR	242.55
PARTS	47.60
JOB# 1 JOURNAL PREFIX AVWS JOB# 1 TOTAL	290.15

JOB# 2 CHARGES

LABOR

3# 2+04VKZ03 DRIVEABILITY RECALL HOURS: 0.70 TECH(S): 0939 69.30

TECH#	DATE	START	FINISH	ACT	TIME	DESCRIPTION
0939	03/31/08	15.70	16.10	0.40	0.00	FINISHED
0939	03/31/08	0.00	0.00	0.00	0.70	OVERRIDE IN INVOICING
			TOTAL TECH TIME	0.40	0.70	

03 RECALL
DID RECALL 24702599 .70 TU
REPROGRAM ECM FOR INTAKE RUNNER POSITION SENSOR

CLAIM #	WARRANTY OP. CODES	FLAT HRS.	OTHER HRS.	FC	AUTH. CODE	CLAIM TYPE
36852B	24702599	0.70			24M266 V	710

WARRANTY COPY-W

[CONTINUED ON NEXT PAGE] 04:36pm

VAS 5051B · Diagnosis log 31.03.2008 12:07

Workshop code:
84044 444 08286

Version:
Base V12.00.00 01/11/2007
Volkswagen V12.83.00 14/01/2008

Dealership identifier:
Princeton Volkswagen

License plate:

Vehicle Identification Number (VIN):
WVWLK73CX7E[redacted]

Vehicle:

Marque:	Volkswagen
Type:	3C - Passat 2006 > only USA/Canada
Model year:	2007 (7)
Body version:	Wagon
Engine code:	BPY 2.0 L Motronic / 147kW

Diagnostic time expenditure (TU): 51

Event memory 1:

Motronic Engine Management System
3C0907115F
2.0l R4/4V TFSI
Coding long
Dealer number 03087
3C0907115F
H14
0020

3 Fault(s) detected

00768 P0300 001
Misfire recognized

Ambient requirements:

Standard values:	
Date	28.03.08
Time	17:16:32
Mileage	0027301
Priority	0
Malfunction occurrence counter	1
Unlearning counter / Driving cycle	-
Measured values:	
Value 1	3057 /min
Value 2	37 %
Value 3	89 km/h
Value 4	86 °C
Value 5	14 °C
Value 6	1000 mbar
Value 7	14.097 V

00769 P0301 001
Cyl 1
Misfire recognized

Ambient requirements:

Standard values:

Date	28.03.08
Time	17:16:32
Mileage	0027301
Priority	0
Malfunction occurrence counter	1
Unlearning counter / Driving cycle	-

Measured values:

Value 1	3057 /min
Value 2	37 %
Value 3	89 km/h
Value 4	86 °C
Value 5	14 °C
Value 6	1000 mbar
Value 7	14.097 V

05445 P1545 002
Throttle valve control system
Malfunction

Ambient requirements:

Standard values:

Date	03.01.08
Time	08:22:56
Mileage	0026992
Priority	0
Malfunction occurrence counter	1
Unlearning counter / Driving cycle	-

Measured values:

Value 1	927 /min
Value 2	35 %
Value 3	0 km/h
Value 4	-3 °C
Value 5	-13 °C
Value 6	1000 mbar
Value 7	14.351 V

Radio-Tuner digital
8E0035593E
SDAR XM H03
Dealer number 00000
8E0035593E *
000
0080

1 Fault(s) detected

02635 000 Note
Tuner not enabled/activated

Ambient requirements:

Standard values:

Date	12.02.08
Time	15:38:01
Mileage	0027228
Priority	7
Malfunction occurrence counter	11
Unlearning counter /	

Driving cycle	66

Radio Premium 7
1K0035180C
Radio PM6 016
Coding 40400
Dealer number 05311
1K0035180C
016
0032

1 Fault(s) detected

00668 002
Vehicle voltage terminal 30
Lower specified value too low
sporadic

Ambient requirements:

Standard values:	
Date	31.03.08
Time	11:49:36
Mileage	0027330
Priority	3
Malfunction occurrence counter	1
Unlearning counter / Driving cycle	68

Tire pressure monitoring
3C0959433C
RDK
Coding 100101
Dealer number 05311
3C0959433C
041
0391

1 Fault(s) detected

00667 008
Ambient temperature signal
implausible signal
sporadic

Ambient requirements:

Standard values:	
Date	01.03.08
Time	16:09:57
Mileage	0027229
Priority	4
Malfunction occurrence counter	1
Unlearning counter / Driving cycle	66

6-speed Automatic Transmission 09G
09G927750CJ
AQ 250 6F
Coding 72
Dealer number 05311
09G927750CJ
H38
0841

0 Fault(s) detected

Anti-lock Brake System (ABS)
3C0614095S
ESP 440 C2 H015
Coding 46523
Dealer number 05311
3C0614095S
015
0004

0 Fault(s) detected

Climatic
1K0820047EB
Climatic PQ35 090
Dealer number 00000

0505

0 Fault(s) detected

Vehicle Electrical System Control Module
3C0937049Q
Bordnetz-SG H46
Coding long
Dealer number 05311
3C0937049Q
H46
1501

3C1955119
Wischer VW461 012
Coding 63445
Dealer number 05311

0503

0 Fault(s) detected

Airbag
3C0909605K
0N AIRBAG VW8R 029
Coding 12366
Dealer number 05311
3C0909605K
029
2521

3C0959339A
BF-Gewichtsens. 006
Dealer number 00000
3C0959339A
006
0002

0 Fault(s) detected

Steering column electronics
3C0953549H
J0527
Coding 2014
Dealer number 05311
3C0953549H

005
0015

0 Fault(s) detected

Instrument cluster
3C0920970R
KOMBIINSTRUMENT VD1
Coding 7205
Dealer number 03751
3C0920970R
033
4240

0 Fault(s) detected

Diagnostic interface for databus
3C0907530C
Gateway 007
Coding long
Dealer number 05311
3C0907951A
007
0040

0 Fault(s) detected

Vehicle position detection
3C0919965A
Kompass 001
Dealer number 00000
3C0919965A
001
0002

0 Fault(s) detected

Immobilizer
3C0959433C
IMMO 041
Dealer number 131071
3C0959433C
041
0364

3C0905861D
ELV 024
Dealer number 131071

0370

0 Fault(s) detected

Driver-side door electronics - MIDI
1K0959701K
Tuer-SG 024
Coding 1205
Dealer number 05311

2365

0 Fault(s) detected

Steering assistance - electro-mechanical
1K1909144K

EPS_ZFLS KI.5 D06
Dealer number 00000

1701

0 Fault(s) detected

Convenience system
3C0959433C
KSG PQ46 RDK 041
Coding long
Dealer number 05311
3C0959433C
041
0213

Sounder n.mounted
Dealer number 00000

NGS n.mounted
Dealer number 00000

IRUE n.mounted
Dealer number 00000

---

0 Fault(s) detected

Passenger-side door electronics - MIDI
1K0959702K
Tuer-SG 024
Coding 1204
Dealer number 05311

2365

0 Fault(s) detected

Parking brake (electrical)
3C0907801B
EPB VC8HC001 013
Coding 13
Dealer number 131071
3C0907801B
013
0001

0 Fault(s) detected

Left rear door electronics
3C9959703A
Tuer-SG 021
Coding 144
Dealer number 05311

2505

0 Fault(s) detected

Rear lid electronics
3C9827383B
J605 HECKDECKEL
Dealer number 23250
3C9827383C
H20
0405

3C9827384B
J756 HECKDECKEL
Dealer number 23250
3C9827384C
H20
0405

0 Fault(s) detected

Right rear door electronics
3C9959704A
Tuer-SG 021
Coding 144
Dealer number 05311

2505

0 Fault(s) detected

Event memory 2:

Radio Premium 7

1 Fault(s) detected

00668 002
Vehicle voltage terminal 30
Lower specified value too low
sporadic

Ambient requirements:

Standard values:	
Date	31.03.08
Time	11:49:36
Mileage	0027330
Priority	3
Malfunction occurrence counter	1
Unlearning counter / Driving cycle	68

Steps completed:

No.	Mask / Test Name / Function / Test step	Result
1.	Diagnosis Start	31.03.2008 11:52
2.	Vehicle Identification	
3.	Vehicle System Test	
4.	Vehicle system test completed 1	
5.	Function Test	
6.	Function Test 1: Start_Protokoll_laufleistung_21	OK
7.	Function Test	
8.	Function Test 2: SYS01_____1_1204_11_GWK_Hinweis	OK
9.	Function Test	
10.	Function Test 3: SYS24_3CU_XXX_1_1006_11_TB_Punkte	OK
11.	Function Test	
12.	Function Test 4: SYS___3C_____1_0206_Hauptprogramm_Meldepflicht	OK
13.	Function Test	

14.	Function Test 5: SYS01_XXUXXX_1_1107_11_TB_2015148	OK
15.	Function Test	
16.	Function Test 6: SYS01_XXUXXX_1_1107_11_TB_2015153	OK
17.	Function Test	
18.	Function Test 7: SYS24_3C__XXX_1_0505_11_HST_Punkte_113er	OK
19.	Function Test	
20.	Function Test 8: SYS24_3C__XXX_1_1005_11_HST_Aktivitaeten	OK
21.	Function Test	
22.	Function Test 9: SYS48_3C_____1_0106_11_FA_48A2	OK
23.	Function Test	
24.	Function Test 10: SYS57_3C____1_0607_11_Brose_Bosch	OK
25.	Fault Memory Contents	
26.	Test Plan 1	
27.	Function Test 11: N70__3CU24BPY_1_0405_11 Ignition Coil 1 with Power Output Stage -N70-	X
28.	Test Plan 2	
29.	Function Test 12: N70__3CU24BPY_1_0405_11 Ignition Coil 1 with Power Output Stage -N70-	?
30.	Test Plan 3	
31.	Function Test 13: N70__3CU24BPY_1_0405_11 Ignition Coil 1 with Power Output Stage -N70-	?
32.	Test Plan 4	
33.	Function Test 14: SYS28_1T_BLX_1_0404_11_Aussetzererkennung Misfire recognition	?
34.	Test Plan 5	
35.	Vehicle system test completed 2	
36.	Function Test	
37.	Function Test 15: SYS01_3C_BPY_1_0105_11_Datenlesen_IUMPR	OK
38.	Function Test	
39.	Function Test 16: SYS___3C_____1_1004_11_Diagnoseprotokoll_senden	X

07 Pass 2.0T

Dealer:	**USA 444 05074**	**Claim no.:**	**86407 / 01**		
		DMS claim number:	86407		
Claim type:	1-10 Warranty Vehicle Warranty	Case number:			
Sales model:	3C25K6 Passat Sed. NAR 14	TPI number:			
Vehicle ID no.:	**WVWAK73C77P[redacted]**	Engine number:	BPY	Engine plant: G	070318
Manufacturer:	VOLKSWAGEN PKW	Gearbox number:	JUD 0046532		
Delivery date:	06/24/2007	Production date:	03/29/2007		
DMS delivery:		Production plant:	VOLKSWAGEN AG, ZWICKAU (MOSEL)		
Reception date:	11/08/2008	Warranty limits (days):	503		
Repair completion date:		11/11/2008	Mileage Km/Miles:	21190	

Comment claim / hand written comment:
ES VEHICLE ENGINE WAS SMOKING

Entry date:	11/12/2008
Date of print:	11/12/2008
Printing user:	SHASHALA
Name of user:	graham

Service no.:	2820 Ignition coil	**Tow in:**	**No**	Repair code:	2
Damage code:	0010 MECHANICAL FAULT,CR	Damage location:		Parts manufacturer:	BAK
Fitted part:	**07K 905 715 D IGNIT.COIL**	**Quantity:**	**1,00**		
Damage causing part:	06F 115F	Quantity:			
Partscheckroom result:	10.07 BAIC	**Dispatch type:**	**Parts Logistics**		
Parts recipient importer:		**Parts recipient manufacturer:**			

VW Parts Return Center : POWERTRAIN (LD)
3800 Hamlin Rd., Auburn Hills
MI 48326

Telleverbleib Partner Entsorgung durch den Partner

[redacted]

84190

Burned housing (P1C)

TEST DATE
DEC 22 2008
TOM MILES

Dealer:	**USA 444 05074**	**Claim no.:**	**86407 / 01**		
		DMS claim number:	86407		
Claim type:	1-10 Warranty Vehicle Warranty	Case number:			
Sales model:	3C25K6 Passat Sed. NAR 14	TPI number:			
Vehicle ID no.:	**WVWAK73C77P[redacted]**	Engine number:	BPY	Engine plant: G	070318
Manufacturer:	VOLKSWAGEN PKW	Gearbox number:	JUD 0046532		
Delivery date:	06/24/2007	Production date:	03/29/2007		
DMS delivery:		Production plant:	VOLKSWAGEN AG, ZWICKAU (MOSEL)		
Reception date:	11/08/2008	Warranty limits (days):	503		
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Comment claim / hand written comment:
ES VEHICLE ENGINE WAS SMOKING

Entry date:	11/12/2008
Date of print:	11/12/2008
Printing user:	SHASHALA
Name of user:	graham

Service no.:	2820 Ignition coil	**Tow In: No**		Repair code: 2	
Damage code:	0010 MECHANICAL FAULT,CR	Damage location:		Parts manufacturer: BAK	
Fitted part:	**07K 905 715 D IGNIT.COIL**	**Quantity:**	**1,00**		
Damage causing part:		Quantity:			
Partscheckroom result:		**Dispatch type:**	**Parts Logistics**		

Parts recipient Importer:
VW Parts Return Center : POWERTRAIN (LD)
3800 Hamlin Rd., Auburn Hills
MI 48326

Parts recipient manufacturer:
Teileverbleib Partner Entsorgung durch den Partner

[redacted]

Customer Number: 700228 Invoice No: 186407 Dealer No: 405074

[redacted]
CORAL SPRINGS, FL [redacted]
Home: [redacted] Bus: N/A

ACCOUNTING

GUNTHER MOTOR CO.

4300 N. STATE ROAD 7
COCONUT CREEK, FL 33073
MAIN (954) 590-3750 SERVICE (954) 590-3801
E-MAIL: service @gunthervw.cc
MV# 43471

SERVICE ADVISOR: 1611 FRANK C PICCIOTTI

COLOR	YEAR	MAKE/MODEL	VIN	LICENSE	MILEAGE IN / OUT	TAG
REFLEX_SIL	07	VOLKSWAGEN PASSAT SE	WVWAK73C77F[redacted]		21190/21191	T5435

DEL. DATE	PROD. DATE	WARR. EXP.	PROMISED	PO NO.	RATE	PAYMENT	INV. DATE
24JUN07			17:00 10NOV08		0.00	CASH	11NOV08

R.O. OPENED	READY	OPTIONS: STK:V72679 DLR:405074 TRN:AUTO
17:05 08NOV08	15:57 11NOV08	

SECTION	OPCODE	TECH	TYPE	S/HRS	COST	SALE	COMP	LIST	NET	TOTAL
A CUSTOMER STATES VEHICLE ENGINE WAS SMOKING										
CAUSE: .										
	01320026 TECHNICAL CHECK									
		1087	WVW3	4.42	1.00	3000	10500			105.00	105.00
	1 07K-905-715-D									
	IGNIT. COIL					1920	3200	0	32.00	32.00	32.00
	1 4B0-973-724 HOUSING					826	1377	0	13.77	13.77	13.77
	1 000-979-141 WIRE SET					478	797	0	7.97	7.97	7.97
	1 000-979-237 WIRE SET					496	827	0	8.27	8.27	8.27
	2 357-972-741 SEAL					210	350	0	1.75	1.75	3.50
	2 357-972-741-B SEAL					210	350	0	1.75	1.75	3.50
	2 000-979-940 CONNECTOR					330	550	0	2.75	2.75	5.50
	2 111-971-939-B CONNECTOR					324	540	0	2.70	2.70	5.40
	28202020 IGNITION COIL REMOVE+REINSTALL									
		1087	WVW3	0.00	0.50	1500	5250			52.50	52.50
	97094156 CENTRAL WIRING HARNESS REPAIR									
		1087	WVW3	0.00	0.70	2100	7350			73.50	73.50
	01210004 TEST DRIVE									
		1087	WVW3	0.00	0.10	300	1050			10.50	10.50
	FC: 282010 BAK									
	PART#: 07K-905-715-D									
	COUNT:					4794	7991	TPARTS		
	CLAIM TYPE: 110									
	AUTH CODE:									
	*					6900	24150	TLABOR		
SUBL LOANER VEHICLE										
			WVW3			7500	7500			75.00	75.00
,,,, VERSION 1 (EMP# 1087,10NOV08 08:58): 21191 PUSHED VEHICLE INTO										
,,,, SHOP/CRANCKS BUT WONT START. PERFORMED GUIDED FAULT FINDING PROCEDURE.										
,,,, MEASURED FUEL PRESSURE FROM FUEL TANK PUMP FOUND AT 4 BAR NORMAL FUEL										
,,,, TANK PUMP PRESSURE,										
,,,, VERSION 2 (EMP# 1087,10NOV08 19:23): 21191 PUSHED VEHICLE INTO										
,,,, SHOP/CRANCKS BUT WONT START. PERFORMED GUIDED FAULT FINDING PROCEDURE.										
,,,, MEASURED FUEL PRESSURE FROM FUEL TANK PUMP FOUND AT 4 BAR NORMAL FUEL										

ON BEHALF OF SERVICING DEALER, I HEREBY CERTIFY THAT THE INFORMATION CONTAINED HEREON IS ACCURATE UNLESS OTHERWISE SHOWN. SERVICES DESCRIBED WERE PERFORMED AT NO CHARGE TO OWNER. THERE WAS NO INDICATION FROM THE APPEARANCE OF THE VEHICLE OR OTHERWISE, THAT ANY PART REPAIRED OR REPLACED UNDER THIS CLAIM HAD BEEN CONNECTED IN ANY WAY WITH ANY ACCIDENT, NEGLIGENCE OR MISUSE. RECORDS SUPPORTING THIS CLAIM ARE AVAILABLE FOR (1) YEAR FROM THE DATE OF PAYMENT NOTIFICATION AT THE SERVICING DEALER FOR INSPECTION BY MANUFACTURER'S REPRESENTATIVE.

(SIGNED) DEALER, GENERAL MANAGER OR AUTHORIZED PERSON (DATE)

STATEMENT OF DISCLAIMER
The factory warranty constitutes all of the warranties with respect to the sale of this item/items. The Seller hereby expressly disclaims all warranties either express or implied, including any implied warranty of merchantability or fitness for a particular purpose. Seller neither assumes nor authorizes any other person to assume for it any liability in connection with the sale of this item/items.

DESCRIPTION	TOTALS
LABOR AMOUNT	
PARTS AMOUNT	
GAS, OIL, LUBE	
SUBLET AMOUNT	
MISC. CHARGES	
TOTAL CHARGES	
LESS INSURANCE	
SALES TAX	
PLEASE PAY THIS AMOUNT	

Accounting Copy

Customer Number: 700228 Invoice No: 186407

Dealer No: 405074

[redacted]
CORAL SPRINGS, FL [redacted]
Home [redacted] Bus: N/A

ACCOUNTING

GUNTHER MOTOR CO.

4300 N. STATE ROAD 7
COCONUT CREEK, FL 33073
MAIN (954) 590-3750 SERVICE (954) 590-3801
E-MAIL: service @gunthervw.cc
MV# 43471

SERVICE ADVISOR: 1611 FRANK C PICCIOTTI

COLOR	YEAR	MAKE/MODEL	VIN	LICENSE	MILEAGE IN / OUT	TAG
REFLEX_SIL	07	VOLKSWAGEN PASSAT SE	WVWAK73C77E[redacted]		21190/21191	T5435

DEL. DATE	PROD. DATE	WARR. EXP.	PROMISED	PO NO.	RATE	PAYMENT	INV. DATE
24JUN07			17:00 10NOV08		0.00	CASH	11NOV08

R.O. OPENED	READY	OPTIONS: STK:V72679 DLR:405074 TRN:AUTO
17:05 08NOV08	15:57 11NOV08	

SECTION	OPCODE	TECH	TYPE	S/HRS	COST	SALE	COMP	LIST	NET	TOTAL

,,,, TANK PUMP PRESSURE, FUSE ON E FUSE BOX/LEFT OF ENGINE COMPARTMENT
,,,, BURNED. INSTALLED NEW FUSE CONTINUED TESTING, FOUND IGNITION COIL #3 4
,,,, PIN WIRE CONECTOR BURNED CONTACTS. INSTALLED NEW 4 WIRE CONECTOR FOR
,,,, COIL #3 & NEW COIL. ERASED FAULTS RESET BASICS, ROADTEST & COMFIRM ALL
,,,, NORMAL AFTER REPAIR. VENDOR CODE ON COIL BAK.
,,,, VERSION 3 (EMP# 1087,10NOV08 19:51): 21191 COIL #3 BURNED + WIRES &
,,,, CONECTOR DAMAGED PUSHED VEHICLE INTO SHOP/CRANCKS BUT WONT START.
,,,, PERFORMED GUIDED FAULT FINDING PROCEDURE. MEASURED FUEL PRESSURE FROM
,,,, FUEL TANK PUMP FOUND AT 4 BAR NORMAL FUEL TANK PUMP PRESSURE, FUSE ON E
,,,, FUSE BOX/LEFT OF ENGINE COMPARTMENT BURNED. INSTALLED NEW FUSE
,,,, CONTINUED TESTING, FOUND IGNITION COIL #3 4 PIN WIRE CONECTOR BURNED
,,,, CONTACTS. INSTALLED NEW 4 WIRE CONECTOR FOR COIL #3 & NEW COIL. ERASED
,,,, FAULTS RESET BASICS, ROADTEST & COMFIRM ALL NORMAL AFTER REPAIR. VENDOR
,,,, CODE ON COIL BAK.
,,,, VERSION 4 (EMP# 1087,11NOV08 08:35): 21191 COIL #3 BURNED + WIRES &
,,,, CONECTOR DAMAGED PUSHED VEHICLE INTO SHOP/CRANCKS BUT WONT START.
,,,, PERFORMED GUIDED FAULT FINDING PROCEDURE. INSPECTED FUEL SUPLY/ MEASURED
,,,, FUEL PRESSURE FROM FUEL TANK PUMP FOUND AT 4 BAR NORMAL FUEL TANK PUMP
,,,, PRESSURE, INSPECTED ALL FUSES & FOUND 20 AMP FUSE ON E FUSE BOX/LEFT OF
,,,, ENGINE COMPARTMENT BURNED. INSTALLED NEW FUSE CONTINUED TESTING, FOUND
,,,, IGNITION COIL #3 & 4 PIN WIRE CONECTOR BURNED CONTACTS. INSTALLED NEW 4
,,,, WIRE CONECTOR FOR COIL #3 & NEW COIL + WIRES. ERASED FAULTS RESET
,,,, BASICS, ROADTEST & COMFIRM ALL NORMAL AFTER REPAIR. VENDOR CODE ON COIL
,,,, BAK.
,,,, VERSION 5 (EMP# 1611,11NOV08 15:43): 21191 COIL #3 BURNED + WIRES &
,,,, CONECTOR DAMAGED PUSHED VEHICLE INTO SHOP/CRANCKS BUT WONT START.
,,,, PERFORMED GUIDED FAULT FINDING PROCEDURE. INSPECTED FUEL SUPLY/ MEASURED
,,,, FUEL PRESSURE FROM FUEL TANK PUMP FOUND AT 4 BAR NORMAL FUEL TANK PUMP
,,,, PRESSURE, INSPECTED ALL FUSES & FOUND 20 AMP FUSE ON E FUSE BOX/LEFT OF
,,,, ENGINE COMPARTMENT BURNED. INSTALLED NEW FUSE CONTINUED TESTING, FOUND
,,,, IGNITION COIL #3 & 4 PIN WIRE CONECTOR BURNED CONTACTS. INSTALLED NEW 4
,,,, WIRE CONECTOR FOR COIL #3 & NEW COIL + WIRES. ERASED FAULTS RESET
,,,, BASICS, ROADTEST & COMFIRM ALL NORMAL AFTER REPAIR. VENDOR CODE ON COIL
,,,, BAK. CUSTOMER CAME IN SATERDAY VEHICLE STAYED OVER WEEKEND ORDERED

ON BEHALF OF SERVICING DEALER, I HEREBY CERTIFY THAT THE INFORMATION CONTAINED HEREON IS ACCURATE UNLESS OTHERWISE SHOWN. SERVICES DESCRIBED WERE PERFORMED AT NO CHARGE TO OWNER. THERE WAS NO INDICATION FROM THE APPEARANCE OF THE VEHICLE OR OTHERWISE, THAT ANY PART REPAIRED OR REPLACED UNDER THIS CLAIM HAD BEEN CONNECTED IN ANY WAY WITH ANY ACCIDENT, NEGLIGENCE OR MISUSE. RECORDS SUPPORTING THIS CLAIM ARE AVAILABLE FOR (1) YEAR FROM THE DATE OF PAYMENT NOTIFICATION AT THE SERVICING DEALER FOR INSPECTION BY MANUFACTURER'S REPRESENTATIVE.

(SIGNED) DEALER, GENERAL MANAGER OR AUTHORIZED PERSON (DATE)

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DESCRIPTION	TOTALS
LABOR AMOUNT	
PARTS AMOUNT	
GAS, OIL, LUBE	
SUBLET AMOUNT	
MISC. CHARGES	
TOTAL CHARGES	
LESS INSURANCE	
SALES TAX	
PLEASE PAY THIS AMOUNT	

Accounting Copy

Customer Number: 700228 Invoice No: 186407

Dealer No: 405074

[redacted]
CORAL SPRINGS, FL [redacted]
Home: [redacted] Bus: N/A

ACCOUNTING

GUNTHER MOTOR CO.
4300 N. STATE ROAD 7
COCONUT CREEK, FL 33073
MAIN (954) 590-3750 SERVICE (954) 590-3801
E-MAIL: service @guntherww.cc
MV# 43471

SERVICE ADVISOR: 1611 FRANK C PICCIOTTI

COLOR	YEAR	MAKE/MODEL	VIN	LICENSE	MILEAGE IN / OUT	TAG
REFLEX_SIL	07	VOLKSWAGEN PASSAT SE	WVWAK73C77P[redacted]		21190/21191	T5435

DEL. DATE	PROD. DATE	WARR. EXP.	PROMISED	PO NO.	RATE	PAYMENT	INV. DATE
24JUN07			17:00 10NOV08		0.00	CASH	11NOV08

R.O. OPENED	READY	OPTIONS: STK:V72679 DLR:405074 TRN:AUTO
17:05 08NOV08	15:57 11NOV08	

SECTION	OPCODE	TECH	TYPE	S/HRS	COST	SALE	COMP	LIST	NET	TOTAL
,,,,PARTS MONDAY 3 DAYS AT 75.00 A DAY										
B CUSTOMER STATES VEHICLE WILL NOT START (										
	01 RELATED TO LINE A									
		1087	C	0.00	0.00	0	0		0.00	0.00
,,,,VERSION 1 (EMP# 1087,10NOV08 19:51): 21191 RELATED TO LANE A SEE										
,,,,LANE A.										

PARTS AND LABOR ARE GUARANTEED FOR 12 MONTHS
OR 12,000 MILES UNLESS NOTED.
ALL PARTS ARE NEW UNLESS NOTED:
PART NOS. THAT END IN "X" ARE REMANUFACTURED
PART NOS. THAT BEGIN WITH "ZR" ARE AFTER-MARKET.

DATE	START	FINISH	DURATION	TYPE	TECH	LINE(S)	CHG
11-10-08	07:53	08:56	1.05	W	1087	A	
	08:56	10:20	1.40	W	1087	A	
	10:21	10:24	0.05	W	1087	A	
	17:21	18:43	1.37	W	1087	A	
11-11-08	08:02	08:35	0.55	W	1087	A	
	08:35	08:35	0.00	W	1087	B	

ACCOUNT	SALE	COST	CONTROL	ACCOUNT	SALE	COST	CONTROL
4403	24150	6900		4703	7991	4794	
4493	7500	7500		4401	0	0	
1332	39641	*******		1188	0	*******	

COST, SALE, & COMP TOTALS 19194 39641 0

ON BEHALF OF SERVICING DEALER, I HEREBY CERTIFY THAT THE INFORMATION CONTAINED HEREON IS ACCURATE UNLESS OTHERWISE SHOWN. SERVICES DESCRIBED WERE PERFORMED AT NO CHARGE TO OWNER. THERE WAS NO INDICATION FROM THE APPEARANCE OF THE VEHICLE OR OTHERWISE, THAT ANY PART REPAIRED OR REPLACED UNDER THIS CLAIM HAD BEEN CONNECTED IN ANY WAY WITH ANY ACCIDENT, NEGLIGENCE OR MISUSE. RECORDS SUPPORTING THIS CLAIM ARE AVAILABLE FOR (1) YEAR FROM THE DATE OF PAYMENT. NOTIFICATION AT THE SERVICING DEALER FOR INSPECTION BY MANUFACTURER'S REPRESENTATIVE.

(SIGNED) DEALER, GENERAL MANAGER OR AUTHORIZED PERSON (DATE)

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DESCRIPTION	TOTALS
LABOR AMOUNT	$ 0.00
PARTS AMOUNT	$ 0.00
GAS, OIL, LUBE	$ 0.00
SUBLET AMOUNT	$ 0.00
MISC. CHARGES	$ 0.00
TOTAL CHARGES	$ 0.00
LESS INSURANCE	$ 0.00
SALES TAX	$ 0.00
PLEASE PAY THIS AMOUNT	$ 0.00

Accounting Copy

Customer Number: 700228 Invoice No: 186407

Dealer No: 405074

INVOICE

[redacted]
CORAL SPRINGS, FL [redacted]
Home: [redacted] Bus: N/A

Gunther Motor Company
4300 N. STATE ROAD 7
COCONUT CREEK, FL 33073
MAIN (954) 690-3750 SERVICE (954) 690-3801
E-MAIL: service @gunthervw.cc
MV# 43471

SERVICE ADVISOR: 1611 FRANK C PICCIOTTI

COLOR	YEAR	MAKE/MODEL	VIN	LICENSE	MILEAGE IN / OUT	TAG
REFLEX_SIL	07	VOLKSWAGEN PASSAT SE	WVWAK73C77P[redacted]		21190/21191	T5435

DEL. DATE	PROD. DATE	WARR. EXP.	PROMISED	PO NO.	RATE	PAYMENT	INV. DATE
24JUN07			17:00 10NOV08		0.00	CASH	11NOV08

R.O. OPENED	READY	OPTIONS:STK:V72879 DLR:405074 TRN:AUTO
17:05 08NOV08	16:57 11NOV08	

SECTION	OPCODE	TECH	TYPE		LIST	NET	TOTAL
B	CUSTOMER STATES VEHICLE WILL NOT START (						
	01 RELATED TO LINE A						
		1087	C			0.00	0.00

PARTS: 0.00 LABOR: 0.00 OTHER: 0.00 TOTAL LINE B: $ 0.00

21191 RELATED TO LANE A SEE LANE A.

PARTS AND LABOR ARE GUARANTEED FOR 12 MONTHS OR 12,000 MILES UNLESS NOTED.
ALL PARTS ARE NEW UNLESS NOTED:
PART NOS. THAT END IN "X" ARE REMANUFACTURED
PART NOS. THAT BEGIN WITH "ZR" ARE AFTER-MARKET.

Late Night Pick-Up

Bring vehicle up front and give keys to sales receptionist.

IF YOU HAVE ANY QUESTIONS REGARDING YOUR SERVICE INVOICE, PLEASE CONTACT YOUR SERVICE ADVISOR AND THEY WILL BE HAPPY TO ASSIST YOU.

CUSTOMER HEREBY ACKNOWLEDGES RECEIPT OF ABOVE MENTIONED VEHICLE AND RECEIPT OF INVOICE HEREOF.

X CUSTOMER SIGNATURE

STATEMENT OF DISCLAIMER
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DESCRIPTION	TOTALS
LABOR AMOUNT	$ 0.00
PARTS AMOUNT	$ 0.00
GAS, OIL, LUBE	$ 0.00
SUBLET AMOUNT	$ 0.00
MISC. CHARGES	$ 0.00
TOTAL CHARGES	$ 0.00
LESS INSURANCE	$ 0.00
SALES TAX	$ 0.00
PLEASE PAY THIS AMOUNT	$ 0.00

Customer Signature Copy

Customer Number: **700228** Invoice No: **186407**

Dealer No: 405074

INVOICE

Gunther Motor Company

4300 N. STATE ROAD 7
COCONUT CREEK, FL 33073
MAIN (954) 590-3750 SERVICE (954) 590-3801
E-MAIL: service @gunthervw.cc
MV# 43471

[redacted]
CORAL SPRINGS, FL [redacted]
Home [redacted] Bus: N/A

SERVICE ADVISOR: 1611 FRANK C PICCIOTTI

COLOR	YEAR	MAKE/MODEL	VIN	LICENSE	MILEAGE IN / OUT	TAG
REFLEX_SIL	07	VOLKSWAGEN PASSAT SE	WVWAK73C77P[redacted]		21190/21191	T5435

DEL. DATE	PROD. DATE	WARR. EXP.	PROMISED	PO NO.	RATE	PAYMENT	INV. DATE
24JUN07			17:00 10NOV08		0.00	CASH	11NOV08

R.O. OPENED	READY	OPTIONS:STK:V72679 DLR:405074 TRN:AUTO
17:05 08NOV08	15:57 11NOV08	

SECTION OPCODE TECH TYPE LIST NET TOTAL

A CUSTOMER STATES VEHICLE ENGINE WAS SMOKING
CAUSE: .
01320028 TECHNICAL CHECK
1087 WVW3 (N/C)
1 07K-905-715-D IGNIT.COIL (N/C)
1 4B0-973-724 HOUSING (N/C)
1 000-979-141 WIRE SET (N/C)
1 000-979-237 WIRE SET (N/C)
2 357-972-741 SEAL (N/C)
2 357-972-741-B SEAL (N/C)
2 000-979-940 CONNECTOR (N/C)
2 111-971-939-B CONNECTOR (N/C)
28202020 IGNITION COIL REMOVE+REINSTALL
1087 WVW3 (N/C)
97094156 CENTRAL WIRING HARNESS REPAIR
1087 WVW3 (N/C)
01210004 TEST DRIVE
1087 WVW3 (N/C)

FC: 282010 BAK
PART#: 07K-905-715-D
COUNT:
CLAIM TYPE: 110
AUTH CODE:
*

SUBL LOANER VEHICLE
VW3 (N/C)

PARTS: 0.00 LABOR: 0.00 OTHER: 0.00 TOTAL LINE A: 0.00

21191 COIL #3 BURNED + WIRES & CONECTOR DAMAGED PUSHED VEHICLE INTO SHOP/CRANCKS BUT WONT START. PERFORMED GUIDED FAULT FINDING PROCEDURE.INSPECTED FUEL SUPLY/ MEASURED FUEL PRESSU[illegible] FUEL TANK PUMP FOUND AT 4 BAR NORMAL FUEL TANK PUMP PRESSURE,[illegible] & FOUND 20 AMP FUSE ON E FUSE BOX/LEFT OF ENGINE COMPARTMENT [illegible] INSTALLED NEW FUSE CONTINUED TESTING, FOUND IGNITION COIL [illegible] WIRE CONECTOR BURNED CONTACTS. INSTALLED NEW 4 WIRE [illegible] #3 & NEW COIL + WIRES. ERASED FAULTS RESET BASICS, ROADTEST & [illegible] ALL NORMAL AFTER REPAIR.VENDOR CODE ON COIL BAK. CUSTOMER CAME IN SATERDAY VEHICLE STAYED OVER WEEKEND ORDERED PARTS MONDAY 3 DAYS AT 75.00 A DAY

Pick-Up
upfront and
receptionist.

IF YOU HAVE ANY QUESTIONS REGARDING YOUR SERVICE INVOICE, PLEASE CONTACT YOUR SERVICE ADVISOR AND THEY WILL BE HAPPY TO ASSIST YOU.

CUSTOMER HEREBY ACKNOWLEDGES RECEIPT OF ABOVE MENTIONED VEHICLE AND RECEIPT OF INVOICE HEREOF.

X CUSTOMER SIGNATURE

STATEMENT OF DISCLAIMER
The factory warranty constitutes all of the warranties with respect to the sale of this item/items. The Seller hereby expressly disclaims all warranties either express or implied, including any implied warranty of merchantability or fitness for a particular purpose. Seller neither assumes nor authorizes any other person to assume for it any liability in connection with the sale of this item/items.

DESCRIPTION	TOTALS
LABOR AMOUNT	
PARTS AMOUNT	
GAS, OIL, LUBE	
SUBLET AMOUNT	
MISC. CHARGES	
TOTAL CHARGES	
LESS INSURANCE	0.00
SALES TAX	
PLEASE PAY THIS AMOUNT	

CUSTOMER #: 700228

186407

WORKORDER

PAGE 2

[redacted]
CORAL SPRINGS, FL
HOME: [redacted]
BUS: [redacted] CONT:N/A

Late Night Pick-Up
Bring vehicle up front and give keys to sales receptionist.

Gunther Motor Company
4300 N. STATE ROAD 7
COCONUT CREEK, FL 33073
MAIN (954) 590-3750 SERVICE (954) 590-3801
E-MAIL: service @gunthervw.cc
MV# 43471
SERVICE ADVISOR: 1611 PICCIOTTI,FRANK C

LABOR CHARGES BASED ON: ☐ FLAT RATE ____ ☐ HOURLY RATE ____ ☐ BOTH APPLY	ESTIMATE/DIAGNOSTIC FEE: $ ____/OR HOURLY AT $ ____ PER HOUR
Other Authorized Person: ____	

COLOR	YEAR	MAKE/MODEL	VIN	LICENSE	MILEAGE IN/ OUT	TAG
REFLEX_SIL	07	VOLKSWAGEN PASSAT SE	WVWAK73C77P[redacted]		21190 /	T5435

DEL DATE	WARR. EXP.	PROMISED	PO NO.	INTENDED PAYMENT METHOD
24JUN07 D		17:00 10NOV08		CASH ☐ CHECK ☐ VISA ☐ MC ☐ AMEX ☐

R.O. OPENED	SAVE OLD PARTS	OPTIONS:STK:V72679 DLR:405014 TRN:AUTO
08NOV2008 / 17:05	☐ YES ☐ NO (CORE MAY APPLY)	

1087

A WVW3 CUSTOMER STATES VEHICLE ENGINE WAS SMOKING

B WVW3 CUSTOMER STATES VEHICLE WILL NOT START !

Loaner

BAK

Spot 36

WVWAK73C77P147155

Customer Copy

I hereby authorize the repair work hereinafter set forth to be done along with the necessary material and agree that you are not responsible for loss or damage to vehicle or articles left in vehicle in case of fire, theft or any other cause beyond your control or for any delays caused by unavailability of parts or delays in parts shipments by the supplier or transporter. I hereby grant you and/or your employees permission to operate the vehicle herein described on streets, highways or elsewhere for the purpose of testing and/or inspection. An express mechanic's lien is hereby acknowledged on above vehicle to secure the amount of repairs thereto, and any reasonable attorney's fees.

We reserve th[redacted] kind and quality all parts that are not availab[redacted]

SIGNATURE [redacted]

PRELIMINARY ESTIMATE $ ____

AUTHORIZED BY X

REVISED ESTIMATE (1)	DATE	TIME	BY

I HEREBY ACKNOWLEDGE THAT I WAS NOTIFIED & GAVE ORAL APPROVAL OF THE ABOVE REVISED ESTIMATES:

X ____
CUSTOMER'S SIGNATURE

NOTE: PARTS REPLACED UNDER WARANTY OF MECHANICAL CONTRACT SUBJECT TO TERMS OF MFG AND/OR ADMINISTRATOR

☐ SAVE MY REPLACED PARTS FOR INSPECTION
☐ DISCARD THE REPLACED PARTS

SHOP SUPPLIES
A charge for shop supplies may apply to this repair. This charge represents cost's and profits to Gunther Motor Co. for miscellaneous shop supplies or waste disposal and is based on 7% of any customer labor charge up to a maximum of $15.00.

PLEASE READ CAREFULLY, CHECK ONE OF THE STATEMENTS BELOW AND SIGN:
I UNDERSTAND THAT UNDER STATE LAW, I AM ENTITLED TO A WRITTEN ESTIMATE, IF MY FINAL BILL WILL EXCEED $100.00.

☐ **I REQUEST A WRITTEN ESTIMATE.**
☐ **I DO NOT REQUEST A WRITTEN ESTIMATE AS LONG AS THE REPAIR COSTS DO NOT EXCEED $____. THE SHOP MAY NOT EXCEED THIS AMOUNT WITHOUT MY WRITTEN OR [redacted]**

SIGNED [redacted] DATE: ____

NOTE: You will be notified upon completion of any diagnostic work necessary to estimate the cost of repair, or if the actual charges will exceed the written estimate, including any additional authorized charges, by $10 or 10%, whichever is greater, not to exceed $100.00. If you are so notified, you may orally or in writing authorize, modify, or cancel the order for repair.

STORAGE CHARGES: No storage charges shall accrue or be due and payable for a period of 3 working days from the day you are notified that the work on your vehicle has been completed. After that date, the daily charge for storage of your vehicle will be $25.00.

LIMITED WARRANTY: The only warranties applying to the part(s) installed in accordance with this estimate are those that may be offered by the manufacturer. The seller hereby expressly disclaims all warranties, either express or implied, including any implied warranty of merchantability or fitness for a particular purpose, and neither assumes nor authorizes any other person to assume for it any liability in connection with the sale of products or service sold under the terms of this estimate. Parts and labor are guaranteed for 12 months or 12,000 miles, whichever comes first. Seller does not guarantee that the work performed in accordance with this estimate will correct any problem specified on the description of the complaint.

CANCELLATION OF REPAIR: In the event the customer cancels the repair work, the vehicle shall be reassembled to a condition reasonably similar as when received unless the customer waiver reassembly or the reassembled vehicle would be unsafe. The repair shop may charge for the cost of teardown, the cost of parts and labor to replace items destroyed by teardown and the cost to reassemble the vehicle.

CUSTOMER #: 700228

186407
WORKORDER

[redacted]
CORAL SPRINGS, FL [redacted]
HOM [redacted] CONT:N/A
BUS:

Gunther Motor Company
4300 N. STATE ROAD 7
COCONUT CREEK, FL 33073
MAIN (954) 590-3760 SERVICE (954) 590-3801
E-MAIL: service @guntherww.co
MV# 43471

LABOR CHARGES BASED ON:
☐ FLAT RATE ____ ☐ HOURLY RATE ____
☐ BOTH APPLY

ESTIMATE/DIAGNOSTIC FEE:
$ _____/OR HOURLY AT
$ _____ PER HOUR

Other Authorized Person:

SERVICE ADVISOR: 1611 PICCIOTTI,FRANK C

COLOR	YEAR	MAKE/MODEL	VIN	LICENSE	MILEAGE IN/ OUT	TAG
REFLEX_SIL	07	VOLKSWAGEN PASSAT SE	WVWAK73C77P[redacted]		21190 /	T5435

DEL DATE	WARR. EXP.	PROMISED	PO NO.	INTENDED PAYMENT METHOD
24JUN07 D		17:00 10NOV08		CASH ☐ CHECK ☐ VISA ☐ MC ☐ AMEX ☐

R.O. OPENED	SAVE OLD PARTS	OPTIONS:STK:V72679 DL[redacted] TRN:AUTO
08NOV2008 / 17:05	☐ YES ☐ NO (CORE MAY APPLY)	

VEHICLE SERVICE HISTORY

RO#	S/A	MILEAGE	CLSD DTE OP CODE	TECH.	TYPE	DESCRIPTION
185014	1022	20552	22OCT08			
			10KNP	1523	CVW	10K INTERVAL SERVICE $119.10, SEE MENU FOR
			9998		CVW	LUBE-OIL-GREASE CHARGES
			9997		CVW	MISC. SHOP CHARGES
			9997		CVW	MISC. SHOP CHARGES
			RESET	1523	CVW	RESET SERVICE REMINDER LIGHT
			91302540	1523	WVW3	RADIO PROGRAMMING
			WIPERS	1523	CVW	REPLACE WIPER INSERTS
174815	1270	14673	05JUN08			
			5KNP	1553	CVW	5K INTERVAL SERVICE $79.50,INCLUDES:CHANGE
			9998		CVW	LUBE-OIL-GREASE CHARGES
			9997		CVW	MISC. SHOP CHARGES
			ROTATE	1553	CVW	ROTATE TIRES AND ADJUST AIR PRESSURE $19.9
166942	1022	10542	27FEB08			
			10KNP	1212	CVW	10K INTERVAL SERVICE $119.10, SEE MENU FOR
			9998		CVW	LUBE-OIL-GREASE CHARGES
			9997		CVW	MISC. SHOP CHARGES
			RESET	1212	CVW	RESET SERVICE REMINDER LIGHT
			24702599	1212	WVW3	UPDATED ECM
157353	1087	5287	24OCT07			
			5KNP	1455	CVW	5K INTERVAL SERVICE $79.50,INCLUDES:CHANGE
			9998		CVW	LUBE-OIL-GREASE CHARGES
			9997		CVW	MISC. SHOP CHARGES
			ROTATE	1455	CVW	ROTATE TIRES AND ADJUST AIR PRESSURE. $14.
			UV	1455	C	VEHICLE OPERATION WITH VW SPECIFICATIONS

WVWAK73C77P147155

Customer Copy

I hereby authorize the repair work hereinafter set forth to be done along with the necessary material and agree that you are not responsible for loss or damage to vehicle or articles left in vehicle in case of fire, theft or any other cause beyond your control or for any delays caused by unavailability of parts or delays in parts shipments by the supplier or transporter. I hereby grant you and/or your employees permission to operate the vehicle herein described on streets, highways or elsewhere for the purpose of testing and/or inspection. An express mechanic's lien is hereby acknowledged on above vehicle to secure the amount of repairs thereto, and any reasonable attorney's fees.

We reserve the right to straighten or replace with a like kind and quality all parts that are not available at this time.

SIGNATURE X _____

PRELIMINARY ESTIMATE $ _____

AUTHORIZED BY X _____

REVISED ESTIMATE (1)	DATE	TIME	BY

I HEREBY ACKNOWLEDGE THAT I WAS NOTIFIED & GAVE ORAL APPROVAL OF THE ABOVE REVISED ESTIMATES:

X _____
Customer Signature

NOTE: PARTS REPLACED UNDER WARANTY OF MECHANICAL CONTRACT SUBJECT TO TERMS OF MFG AND/OR ADMINISTRATOR

☐ SAVE MY REPLACED PARTS FOR INSPECTION
☐ DISCARD THE REPLACED PARTS

SHOP SUPPLIES AND HAZARDOUS WASTE DISPOSAL CHARGE.
A charge for shop supplies may apply to this repair. This charge represents cost's and profits to Gunther Motor Co. for miscellaneous shop supplies or waste disposal and is based on 7% of any customer labor charge up to a maximum of $15.00.

PLEASE READ CAREFULLY, CHECK ONE OF THE STATEMENTS BELOW AND SIGN:
I UNDERSTAND THAT UNDER STATE LAW, I AM ENTITLED TO A WRITTEN ESTIMATE, IF MY FINAL BILL WILL EXCEED $100.00.

☐ **I REQUEST A WRITTEN ESTIMATE.**
☐ **I DO NOT REQUEST A WRITTEN ESTIMATE AS LONG AS THE REPAIR COSTS DO NOT EXCEED $ _____. THE SHOP MAY NOT EXCEED THIS AMOUNT WITHOUT MY WRITTEN OR ORAL APPROVAL.**

SIGNED: DATE:

NOTE: You will be notified upon completion of any diagnostic work necessary to estimate the cost of repair, or if the actual charges will exceed the written estimate, including any additional authorized charges, by $10 or 10%, whichever is greater, not to exceed $100.00. If you are so notified, you may orally or in writing authorize, modify, or cancel the order for repair.

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LIMITED WARRANTY: The only warranties applying to the part(s) installed in accordance with this estimate are those that may be offered by the manufacturer. The seller hereby expressly disclaims all warranties, either express or implied, including any implied warranty of merchantability or fitness for a particular purpose, and neither assumes nor authorizes any other person to assume for it any liability in connection with the sale of products or service sold under the terms of this estimate. Parts and labor are guaranteed for 12 months or 12,000 miles, whichever comes first. Seller does not guarantee that the work performed in accordance with this estimate will correct any problem specified on the description of the complaint.

CANCELLATION OF REPAIR: In the event the customer cancels the repair work, the vehicle shall be reassembled to a condition reasonably similar as when received unless the customer waiver reassembly or the reassembled vehicle would be unsafe. The repair shop may charge for the cost of teardown, the cost of parts and labor to replace items destroyed by teardown and the cost to reassemble the vehicle.

Vehicle Walkaround Worksheet

Checked in by: Frank D

Date : 11/8/08

Customer Name : [redacted]

VIN Number : 1J[redacted]

Tag Number : 3435

Mileage : 21,190

License Plate :

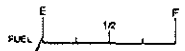
Color : Silver

Model : Passat

OIL SERVICE ☐ ☐ ☐ ☐ ☐ ☐ INSPECTION TRANS (A/M)_____

Verification of Customer Complaint/Inquiry:

Show damage location above with codes:



X Stone Damage ● Dent ☑ Car Dirty

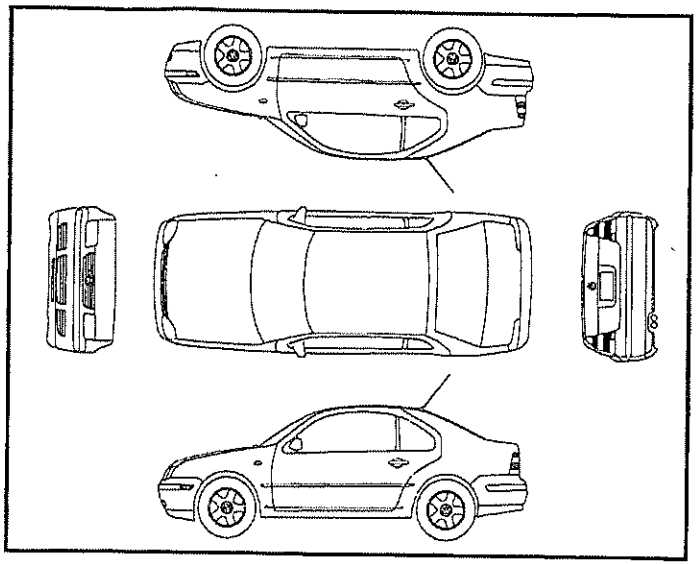
▲ Scratch ■ Collision data ☐ Car Clean

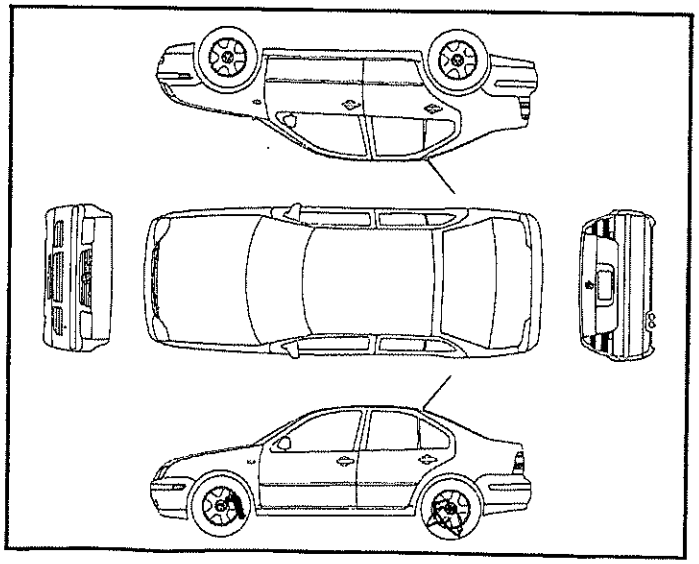
☐ Undercoating damage (explain in remarks)

If your car is dirty when it is dropped off it's possible we won't see some minor damage.

Customer Signature [redacted]

GCC-101





Gunther Motor Company

4300 N. STATE ROAD 7
COCONUT CREEK, FL 33073
(954) 590-3750

PO: 71909
PAGE: 1 OF 1
PO DATE: 11NOV2008
PRINT DATE: 11NOV2008 15:40
TELEPHONE: 9544972282
REQUESTOR: FRANKP
ISSUED BY: FRANKP
SHIP VIA:
COMMENT:

[redacted]
COCONUT CREEK FL [redacted]

AUTHORIZING SIGNATURE

ORDER AMOUNT: $75.00

RO NO.	DESCRIPTION	AMOUNT
186407	LOANER VEHICLE CESPEDES	75.00

CUSTOMER#: 700228 NAME:· CESPEDES,VICTOR J

PURCHASE ORDER

FILE COPY

[redacted]

RENTAL TYP [redacted] SOURCE # I.D. # 006

RENTAL AGREEMENT NO. D141367

11/08/2008 4:12 PM

START CHARGES IF DIFFERENT

[redacted]

DAY = 24 HOUR PERIOD

VEHICLE $7.50/HOUR $30.00/DAY

ORIGINAL VEHICLE

CITY CORAL SPRINGS STATE FL [redacted] OFFICE PHONE

COLOR	LICENSE NO.
BLACK	S120TK
MODEL	ECAR#
JETT	FLVW96

EMPLOYER [redacted]

[redacted] STATE FL EXPIRES 08/20/2014

MILEAGE IN / OUT 2457

DRIVEN

[redacted]

$0.30/MILE CHARGE ABOVE 150/DAY 0/WEEK 0/MONTH

CONDITION AND FUEL LEVEL AGREED TO X RENTER

ADDITIONAL AUTHORIZED DRIVER(S) - EXCEPT AS REQUIRED BY LAW, NONE PERMITTED WITHOUT OWNER'S WRITTEN APPROVAL.

I REQUEST OWNER'S PERMISSION TO ALLOW NO OTHER DRIVERS PERMITTED

AGE DRIVER'S LICENSE NO. STATE EXP.

WHO IS UNDER MY CONTROL AND DIRECTION TO DRIVE VEHICLE FOR ME AND ON MY BEHALF. I AM RESPONSIBLE ... DRIVING, AND FOR FULFILLING TERMS AND CONDITIONS OF THIS RE... USE OF VEHICLE BY AN UNAUTHORIZED DRIVER WILL AFFECT MY ... AGREEMENT.

RENTER: [redacted]

PERMISSION [redacted] IN THE STATE OF RENTAL AND THE FOLLOWING STATE(S): FLA ONLY NO SMOKING/PETS

OPERATION IN ANY OTHER STATE OR COUNTRY WILL AFFECT YOUR LIABILITY AND RIGHTS UNDER THIS AGREEMENT.

OUT E 1/8 1/4 3/8 1/2 5/8 3/4 7/8 F

No Gasoline Refunds

IN E 1/8 1/4 3/8 1/2 5/8 3/4 7/8 F

OPTIONAL PRODUCTS NOTICE: WE OFFER FOR AN ADDITIONAL CHARGE THE FOLLOWING OPTIONAL PRODUCTS: DAMAGE WAIVER; PERSONAL ACCIDENT INSURANCE; AND SUPPLEMENTAL LIABILITY PROTECTION. BEFORE DECIDING WHETHER TO PURCHASE ANY OF THESE PRODUCTS, YOU MAY WISH TO DETERMINE WHETHER YOUR PERSONAL INSURANCE OR CREDIT CARD PROVIDES YOU COVERAGE DURING THE RENTAL PERIOD. THE PURCHASE OF ANY OF THESE PRODUCTS IS NOT [redacted]

RENTER DECLINES OPTIONAL DAMAGE WAIVER (DW) AND ASSUMES DAMAGE RESPONSIBILITY. SEE PAGE 2, PARAGRAPH 8.

RENTER ACCEPTS OPTIONAL DAMAGE WAIVER (DW) AT DAILY FEE SHOWN IN COLUMN TO RIGHT. SEE OPTIONAL PRODUCTS NOTICE TO LEFT AND PAGE 3, PARAGRAPH 18. DW IS NOT INSURANCE. RENTER X Accepts DW

$15.99/DAY

[redacted]

RENTER ACCEPTS OPTIONAL PERSONAL ACCIDENT INSURANCE (PAI) AT FEE SHOWN IN COLUMN TO RIGHT. SEE OPTIONAL PRODUCTS NOTICE TO LEFT AND PAGE 3, PARAGRAPH 18. RENTER X Accepts PAI

$3.40/DAY

RENTER ACCEPTS OPTIONAL SUPPLEMENTAL LIABILITY PROTECTION (SLP) AT FEE SHOWN IN COLUMN TO RIGHT. SEE OPTIONAL PRODUCTS NOTICE TO LEFT AND PAGE 3, PARAGRAPH 17. RENTER X Accepts SLP

$15.45/DAY

19.99/Day

...NT OF THE ENTIRE AGREEMENT, WHICH CONSISTS OF PAGES 1 THROUGH 4.

... I ACCEPT ... THAT THE DRIVER'S LICENSE ... PENDED, EXPIRED ...

FUEL CHARGE $4.35/GALLON

REPLACEMENT VEHICLE

RENTER [redacted] DATE 11/08/2008

OWNER REP X EMPL # E640D1

SALES TAX 6.00%
SC REC $2.01/DAY
SC REC $60.30
VLF REC $0.32/DAY

COLOR	LICENSE NO.
MODEL	ECAR#

I WILL RETURN CAR BY: DATE	TIME	DEPOSIT(S): AMOUNT	PAID BY	
1/10/2008		$50.00	xxxxxxxxxxxx3933	11/08/2008

MILEAGE IN / OUT

DRIVEN

ADDITIONAL INFORMATION

No Major Damages

CONDITION AND FUEL LEVEL AGREED TO X RENTER

____ RECEIVED THE VISITOR INFORMATION MAP ____ WAIVED THE RIGHT TO RECEIVE THE VISITOR INFORMATION MAP

*SC REC IS THE FLORIDA STATE RENTAL CAR SURCHARGE AND THE WASTE TIRE AND BATTERY RECOVERY SEE PAGE 2, PARAGRAPH 1C.6.

*VLF REC IS THE VEHICLE LICENSE FEE RECOVERY SEE PAGE 2, PARAGRAPH 1C.8

THE VALID AND COLLECTIBLE LIABILITY INSURANCE AND PERSONAL INJURY PROTECTION INSURANCE OF ANY AUTHORIZED RENTAL OR LEASING DRIVER IS PRIMARY FOR THE LIMITS OF LIABILITY AND PERSONAL INJURY PROTECTION COVERAGE REQUIRED BY FLORIDA STATUTE SECTION 324.021(7) AND FLORIDA STATUTE SECTION 627.736

FAILURE TO RETURN RENTAL PROPERTY OR EQUIPMENT ... TO THE PROPERTY OR EQUIPMENT ARE PENALTIES ... [redacted] ... ALL AMOUNTS DUE (INCLUDING COSTS FOR DAMAGES) WITH SECTION 812.155, FLORIDA STATUTE

RENTER [redacted]

OUT E 1/8 1/4 3/8 1/2 5/8 3/4 7/8 F

No Gasoline Refunds

IN E 1/8 1/4 3/8 1/2 5/8 3/4 7/8 F

TOTAL CHARGES

DEPOSITS

REFUNDS

AMOUNT DUE

CLOSED BY

PAID BY	CASH	CHECK	CHARGE
RECEIPT OF CASH REFUND	DATE	AMOUNT	RECEIVED BY

207.33 102.81

VAS 5051B Diagnosis log 10.11.2008 20:08

Workshop code:
85894 444 05074

Version:
Base V14.00.00 26/06/2008
Volkswagen V14.88.00 13/08/2008

Dealership identifier:
GUNTHER VW OF COCONUT CREEK

License plate:

Vehicle identification Number (VIN):
WVWAK73C77[redacted]

Vehicle:

Marque:	Volkswagen
Type:	3C - Passat 2006 > only USA/Canada
Model year:	2007 (7)
Body version:	Sedan
Engine code:	BPY 2.0 L Motronic / 147kW

Diagnostic time expenditure (TU): 60

Event memory 1:

Motronic Engine Management System
3C0907115S
2.0l R4/4V TFSI
Coding long
Dealer number 05074
8P0907115B
H16
0020

2 Fault(s) detected

00768 P0300 001
Misfire recognized

Ambient requirements:

Standard values:	
Date	10.11.08
Time	10:39:12
Mileage	00341[illegible]
Priority	2
Malfunction occurrence counter	1
Unlearning counter / Driving cycle	-
Measured values:	
Value 1	964 /min
Value 2	67 %
Value 3	2 km/h
Value 4	39 °C
Value 5	28 °C
Value 6	1010 mbar
Value 7	13.84[illegible] V

00771 P0303 001
Cyl 3
Misfire recognized

Ambient requirements:

Standard values:

Date	10.11.08
Time	10:39:29
Mileage	00341[illegible]4
Priority	2
Malfunction occurrence counter	1
Unlearning counter / Driving cycle	-

Measured values:

Value 1	902 /min
Value 2	58 %
Value 3	7 km/h
Value 4	39 °C
Value 5	28 °C
Value 6	1010 mbar
Value 7	14.097 V

Radio Premium 7
1K0035180G
Radio PM6 017
Coding 40401
Dealer number 00028
1K0035180G
017
0035

1 Fault(s) detected

00668 002
Vehicle voltage terminal 30
Lower specified value too low
sporadic

Ambient requirements:

Standard values:

Date	10.11.08
Time	08:04:33
Mileage	00341[illegible]4
Priority	3
Malfunction occurrence counter	1
Unlearning counter / Driving cycle	216

6-speed Automatic Transmission 09G
09G927750HJ
AQ 250 6F
Coding 72
Dealer number 05074
09G927750FP
H69
1068

0 Fault(s) detected

Anti-lock Brake System (ABS)
3C0614109A
ESP 440 C4 H018
Coding 13755
Dealer number 00028
3C0614109A
018
0001

0 Fault(s) detected

Climatic
1K0820047GG
Climatic PQ35 141
Dealer number 00000
1K0820047GG
141
0909

0 Fault(s) detected

Vehicle Electrical System Control Module
3C0937049AE
Bordnetz-SG H52
Coding long
Dealer number 00028
3C0937049AE
H52
2002

3C1955419A
Wischer 191206 003
Coding 46997
Dealer number 00028

0205

0 Fault(s) detected

Radio-Tuner digital
8E0035593H
SDAR SIRIUS H06
Dealer number 00000
8E0035593H
000
0080

0 Fault(s) detected

Airbag
3C0909605N
17 AIRBAG VW8R 032
Coding 12599
Dealer number 00028
3C0909605N
032
2522

3C0959339B
BF-Gewichtsens. 007
Dealer number 00000
3C0959339B
007
0003

0 Fault(s) detected

Steering column electronics
3C0953549K
J0527
Coding 2111
Dealer number 00028
3C0953549K
006

0015

XXXXXXXXXX
E0221 007
Dealer number 00000

—
0080

0 Fault(s) detected

Instrument cluster
3C0920971A
KOMBIINSTRUMENT VD1
Coding 7205
Dealer number 00028
3C0920971A
007
1614

0 Fault(s) detected

Diagnostic interface for databus
3C0907530C
Gateway 007
Coding long
Dealer number 00028
3C0907951A
007
0040

0 Fault(s) detected

Vehicle position detection
3C0919965
Kompass 005
Dealer number 00028
3C0919965
005
0003

0 Fault(s) detected

Immobilizer
3C0959433AK
IMMO 051
Dealer number 131071
3C0959433AK
051
0383

3C0905861G
ELV 027
Dealer number 131071

0380

0 Fault(s) detected

Driver-side door electronics - MAX
1K0959701P
J386 TUER-SG FT
Coding 1205
Dealer number 00028
1K0959793L
008

1131

0 Fault(s) detected

Steering assistance - electro-mechanical
1K1909144L
EPS_ZFLS KI.135 H07
Dealer number 00028

--
1806

0 Fault(s) detected

Convenience system
3C0959433AK
KSG PQ46 RDK 051
Coding long
Dealer number 00028
3C0959433AK
051
0219

Sounder n.mounted
Dealer number 00000

--

NGS n.mounted
Dealer number 00000

--

IRUE n.mounted
Dealer number 00000

--

0 Fault(s) detected

Passenger-side door electronics - MAX
1K0959702P
J387 TUER-SG BT
Coding 1204
Dealer number 00028
1K0959792L
008
1131

0 Fault(s) detected

Parking brake (electrical)
3C0907801E
EPB VC8HC003 013
Coding 13
Dealer number 131071
3C0907801E
013
0003

0 Fault(s) detected

Left rear door electronics
1K0959703Q
J388 TUER-SG HL
Coding 1168

Dealer number 00028
1K0959795J
006
1118

0 Fault(s) detected

Tire pressure monitoring
3C0959433AK
RDK
Coding 100101
Dealer number 00028
3C0959433AK
051
0440

0 Fault(s) detected

Right rear door electronics
1K0959704Q
J389 TUER-SG HR
Coding 1168
Dealer number 00028
1K0959794J
006
1118

0 Fault(s) detected

Event memory 2:

Event memory 3:

Steps completed:

No.	Mask / Test Name / Function / Test step	Result
1.	Diagnosis Start	10.11.2008 20:01
2.	Vehicle Identification	
3.	Vehicle System Test	
4.	Vehicle system test completed 1	
5.	Function Test	
6.	Function Test 1: Start_Protokoll_laufleistung_21	OK
7.	Function Test	
8.	Function Test 2: SYS01_____1_0308_11_TPI_Dieselaggregate	OK
9.	Function Test	
10.	Function Test 3: SYS01_____1_1204_11_GWK_Hinweis	OK
11.	Function Test	
12.	Function Test 4: SYS24_3CU_XXX_1_1006_11_TB_Punkte	OK
13.	Function Test	
14.	Function Test 5: SYS___3C_____1_0206_Hauptprogramm_Meldepflicht	OK
15.	Function Test	
16.	Function Test 6: SYS01_XXUXXX_1_1107_11_TB_2015148	OK
17.	Function Test	
18.	Function Test 7: SYS01_XXUXXX_1_1107_11_TB_2015163	OK
19.	Function Test	
20.	Function Test 8: SYS24_3C__XXX_1_0505_11_HST_Punkte_113er	OK
21.	Function Test	
22.	Function Test 9: SYS24_3C__XXX_1_1005_11_HST_Aktivitaeten	OK
23.	Function Test	
24.	Function Test 10: SYS48_3C_____1_0106_11_FA_48A2	OK
25.	Function Test	
26.	Function Test 11: SYS57_3C____1_0607_11_Brose_Bosch	OK
27.	Function Test	
28.	Function Test 12: SYS45_3C_____1_0408_11_ESP_Kundendienstsoftware	OK
29.	Fault Memory Contents	
30.	Test Plan 1	
31.	Function Test 13: SYS28_1T_BLX_1_0404_11_Aussetzererkennung	?

	Misfire recognition	
32.	Test Plan 2	
33.	Function Test 14: SIG91____1K_____1_0803_11_Versorgungssp_Radio Voltage supply, radio	OK
34.	Test Plan 3	
35.	Function Test 15: SYS28_3B_ALT_1_0203_11_Sekundaerspannung_anzeigen Display rod ignition coil secondary voltage	X
36.	Test Plan 4	
37.	Function Test 16: KD2010_1T_BLX_1_0504_11 Fuel tank empty	?
38.	Test Plan 5	
39.	Function Test 17: N291_3CU24PY_1_0405_11 Ignition Coil 3 with Power Output Stage -N291-	X
40.	Test Plan 6	
41.	Function Test 18: Q___1K_28AXX_1_0904_11 Spark Plugs -Q-	?
42.	Test Plan 7	
43.	Function Test 19: KD15___1J_BFQ_1_0802_11 Checking compression	?
44.	Test Plan 8	
45.	Function Test 20: KD2440_1K_AXX_1_0904_11 Injectors leaking/clogged	?
46.	Test Plan 9	
47.	Vehicle system test completed 2	
48.	Test Plan 10	
49.	Function Test 21: SYS01_1K_AXX_1_0904_11_Readinesscode_erzeugen Generate readiness code	?
50.	Vehicle system test completed 3	
51.	Function Test	
52.	Function Test 22: SYS01_3C_BPY_1_0105_11_Datenlesen_IUMPR	?
53.	Function Test	
54.	Function Test 23: SYS___3C_____1_1004_11_Diagnoseprotokoll_senden	X

Malfunction messages

Screen : Message title / message text	Result
Vehicle System Test : Diagnostic bus faulty No voltage or voltage too low on diagnostic bus. Is the battery voltage from the vehicle too low? Is the diagnostic connector connected to the vehicle?	Cancel
Vehicle System Test : Diagnostic bus faulty No voltage or voltage too low on diagnostic bus. Is the battery voltage from the vehicle too low? Is the diagnostic connector connected to the vehicle?	Cancel
Vehicle System Test : Diagnostic bus faulty No voltage or voltage too low on diagnostic bus. Is the battery voltage from the vehicle too low? Is the diagnostic connector connected to the vehicle?	Cancel

186407 09:56 10NOV08 1171

A	07K-905-715-D	IGNIT.COI	1	3200
A	480-973-724	HOUSING	1	1377
A	000-979-141	WIRE SET	1	797
A	000-979-237	WIRE SET	1	827

Peters, Greg

From: Peters, Greg
Sent: Wednesday, March 10, 2010 1:53 PM
To: LeCoz, Manny
Subject: RE: Customer = [redacted]..VIN = WVWAK73C16E[redacted]..Case = 100109369

Cool. ty

Greg Peters
Regional Consultant
Volkswagen Customer Care

Volkswagen of America, Inc.
3499 West Hamlin
Rochester Hills, MI 48309

Phone: 248-754-3355
Fax: 248-754-6504

greg.peters@vw.com <mailto:greg.peters@vw.com>
http:www.vw.com

From: LeCoz, Manny
Sent: Wednesday, March 10, 2010 1:52 PM
To: Peters, Greg
Subject: RE: Customer = [redacted]..VIN = WVWAK73C16E[redacted]..Case = 100109369

Greg,

No need to create a fire incident report. If it makes sense, please feel free to generate payment to customer on your end.

Regards,
Manny

From: Peters, Greg
Sent: Wednesday, March 10, 2010 1:47 PM
To: LeCoz, Manny
Subject: Customer = [redacted]..VIN = WVWAK73C16E[redacted]..Case = 100109369

Manny,

How do you want to handle this one? The customer is seeking reimbursement for a coil and a wiring harness which were damaged by fire.

As the vehicle has been fixed, there isn't anything to inspect. Should PL generate the reimbursement, or Customer Care?

Additionally, I was wondering whether we need a Fire Incident Report generated?

Greg Peters
Regional Consultant
Volkswagen Customer Care

Volkswagen of America, Inc.
3499 West Hamlin
Rochester Hills, MI 48309

Phone: 248-754-3355
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greg.peters@vw.com <mailto:greg.peters@vw.com>
http:www.vw.com

PE10-027

VW

10-4-2010

EXHIBIT TO REQUEST 10

16.09.02.00 Heated Catalyst Monitoring

not applicable

16.09.03.00 Misfire Monitoring

16.09.03.01 General Description

The method of engine misfire detection is based on evaluating the engine speed fluctuations.

In order to detect misfiring at any cylinder, the torque of each cylinder is evaluated by metering the time between two ignition events, which is a measure for the mean value of the speed of this angular segment. This means, a change of the engine torque results in a change of the engine speed.

Additionally the influence of the load torque will be determined.
When the mean engine speed has been measured, influences caused by different road surfaces have to be eliminated (e.g. pavement, pot holes etc.).

This method consists of the following main parts:

- Correction of normal changes of engine rpm and engine load
- Data acquisition, adaptation of sensor wheel and typical engine behaviour is included
- Calculation of engine roughness
- Comparison with a threshold depending on operating point
- Fault processing, counting procedure of single or multiple misfire events

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16.09.03.02 Monitoring Structure

Data acquisition
The duration of the crankshaft segments is measured continuously for every combustion cycle and stored in a memory.

Sensor wheel adaptation
Within defined engine speed and load ranges the adaptation of the sensor wheel tolerances and the typical engine behaviour is carried out, if no misfire events are detected.
With progressing adaptation the sensitivity of the misfire detection is increasing.
The adaptation values are stored in a non-volatile memory and taken into consideration for the calculation of the engine roughness.

Misfire detection
The following operating steps are performed for each measured segment, corrected by the sensor wheel adaptation.

Calculation of the engine roughness
The engine roughness is derived from the differences of the segment's duration.
Different statistical methods are used to distinguish between normal changes of the segment duration and the changes due to misfiring.

Detecting of multiple misfiring
If several cylinders are misfiring (e.g. alternating one combustion/one misfire event), the calculated engine roughness values may be so low, that the threshold is not exceeded during misfiring and therefore, misfiring would not be detected.

Based on this fact, the periodicity of the engine roughness value is used as additional information during multiple misfiring. The engine roughness values are filtered and a new multiple filter value is created. If this filter value increases due to multiple misfiring, the roughness threshold is decreased. By applying this strategy, multiple misfiring is detected reliably.

Calculation of the engine roughness threshold value

The engine roughness threshold value consists of the base value, which is determined by a load/speed dependent map.
During warm-up, a coolant-temperature-dependent correction value is added. In case of multiple misfiring the threshold is reduced by an adjustable factor.
Without sufficient sensor wheel adaptation the engine roughness threshold is limited to a speed dependent minimum value.
A change of the threshold towards a smaller value is limited by a variation of filter value (low pass filter).

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16.09.03.02 Monitoring Structure (continue)

Determination of misfiring

Random misfire
Misfire detection is performed by comparing the engine roughness threshold value with the engine roughness value.
If the engine roughness value is greater than the roughness threshold value a single misfire is detected. With this misfire determination it is possible to identify misfiring cylinders individually.

Random misfire without valid adaptation
To eliminate the influence of the missing flywheel adaptation each engine roughness value is compared with that one on the same flywheel segment on the intermittent revolution. Therefore single misfire events are detected reliable without determination of the flywheel tolerances.

Continuous misfire on one or multiple cylinders
To avoid noise effects, all engine roughness values are low pass filtered and the detection threshold is corrected by the mean value of the filters. Therefore the amplitude to noise ratio improves and the sensitivity for misfire detection of continuous misfiring cylinders increases.

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16.09.03.02 Monitoring Structure (continue)

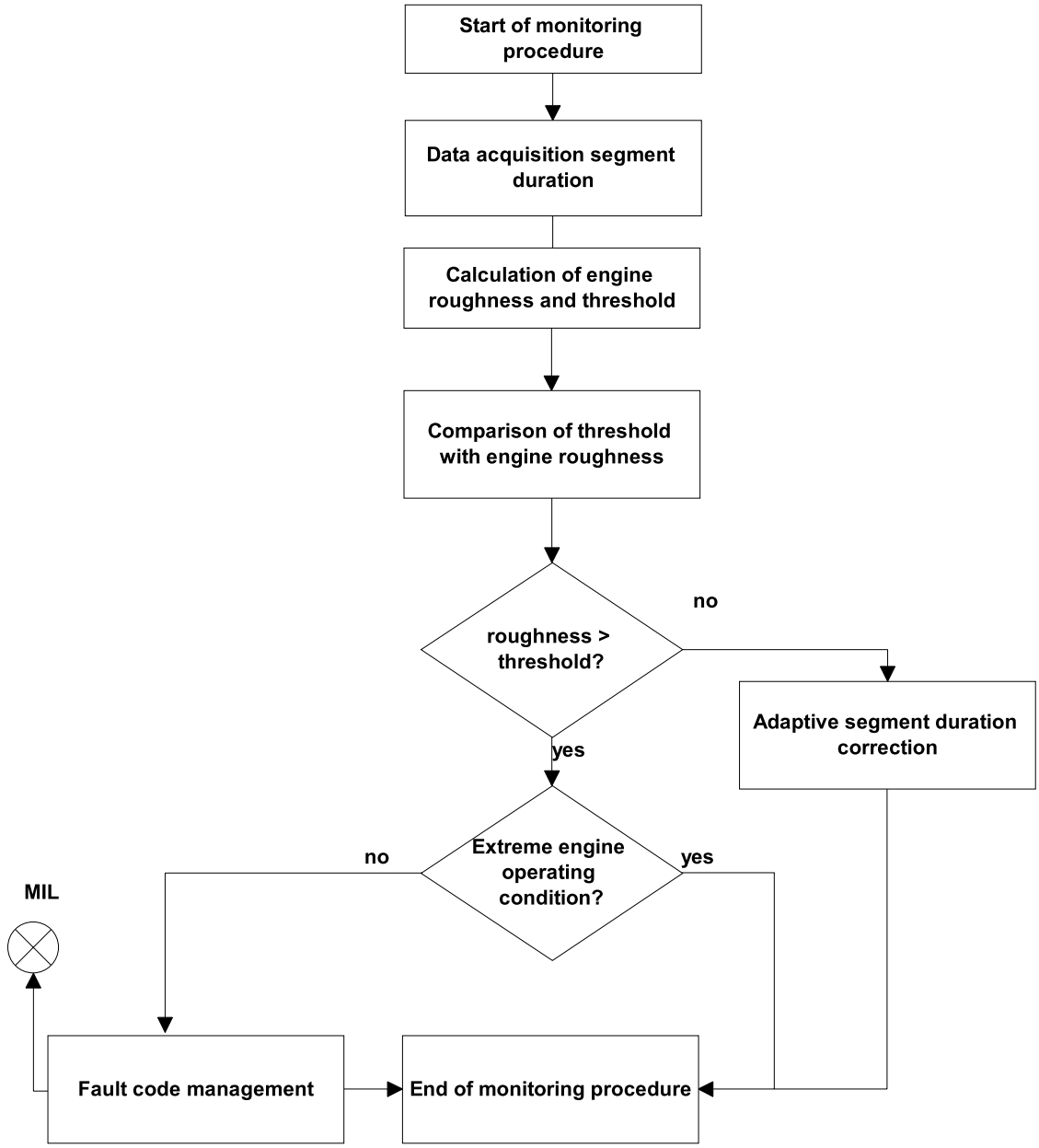
Statistics, Fault processing:
Within an interval of 1,000 crankshaft revolutions, the detected number of misfiring events is totalled for each cylinder. If the sum of cylinder fault counters exceeds a predetermined value, a fault code for emission relevant misfiring is preliminary stored after completion of the first interval after engine has been started or the forth interval during a driving cycle where misfire has been detected.
In the case of misfire detection for one cylinder, the fault is determined by a cylinder selective fault code otherwise the fault code for multiple misfire will be stored additionally.

Within an interval of 200 crankshaft revolutions, the detected numbers of misfire events is weighted and totalled for each cylinder.
The weighting factor is determined by a load/speed dependent map.
If the sum of cylinder fault counters exceeds a predetermined value, the fault code for indicating catalyst damage relevant misfiring is stored and the MIL is illuminated with "on/off"-sequence once per second (blinking).
In case of misfire detection for one cylinder the fault is determined by a cylinder selective fault code otherwise the fault code for multiple misfiring will be stored additionally.
If catalyst damaging misfire does not occur any longer during the first driving cycle, the MIL will return to the previous status of activation (e.g. MIL off) and will remain illuminated continuously during all subsequent driving cycles if catalyst related misfire is detected again. However all misfire events where the catalyst can be damaged are indicated by a blinking MIL. If catalyst damage is not detected under similar conditions in the subsequent driving cycle the temporary fault code will be deleted.

In the case of catalyst related misfire, the Lambda closed loop system is switched to open-loop condition according to the basic air/fuel ratio calculation (Lambda=1).

All misfire counters are reset after each interval.

16.09.03.03 Basic Flow Chart Misfire Monitoring



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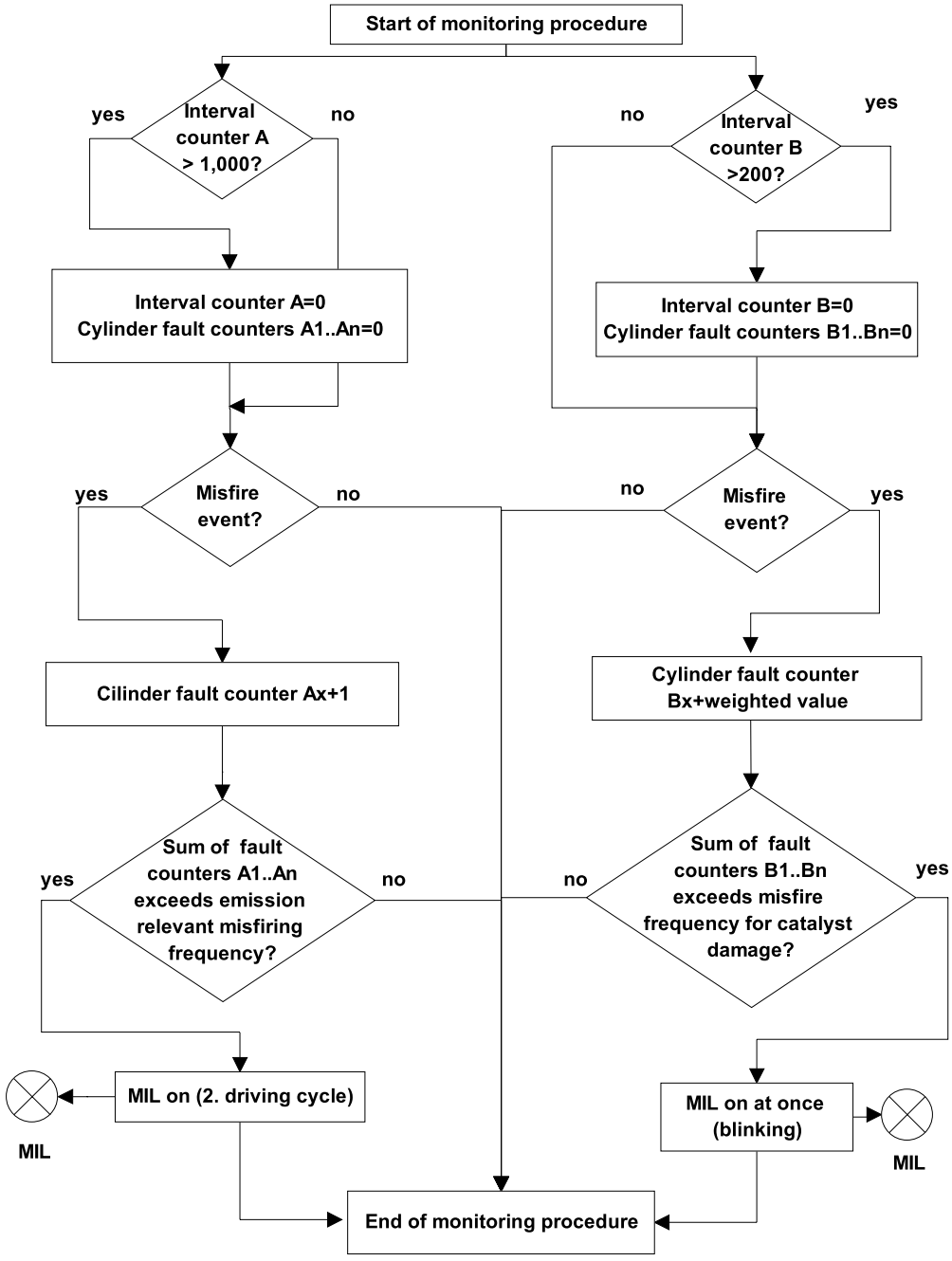
16.09.03.04 Basic Flow Chart of Statistics, Fault Processing:



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.02.00.00 Heated Catalyst Monitoring

not applicable

.03.00.00 Misfire Monitoring

.03.00.01 General Description

The method of engine misfire detection is based on evaluating the engine speed fluctuations.

In order to detect misfiring at any cylinder, the torque of each cylinder is evaluated by metering the time between two ignition events, which is a measure for the mean value of the speed of this angular segment. This means, a change of the engine torque results in a change of the engine speed.

Additionally the influence of the load torque will be determined.
When the mean engine speed has been measured, influences caused by different road surfaces have to be eliminated (e.g. pavement, pot holes etc.).

This method consists of the following main parts:

- Correction of normal changes of engine rpm and engine load
- Data acquisition, adaptation of sensor wheel and typical engine behaviour is included
- Calculation of engine roughness
- Comparison with a threshold depending on operating point
- Fault processing, counting procedure of single or multiple misfire events

.03.01.02 Monitoring function description

Data acquisition
The duration of the crankshaft segments is measured continuously for every combustion cycle and stored in a memory.

Sensor wheel adaptation
Within defined engine speed and load ranges the adaptation of the sensor wheel tolerances and the typical engine behaviour is carried out, if no misfire events are detected.
With progressing adaptation the sensitivity of the misfire detection is increasing.
The adaptation values are stored in a non-volatile memory and taken into consideration for the calculation of the engine roughness.

Misfire detection
The following operating steps are performed for each measured segment, corrected by the sensor wheel adaptation.

Calculation of the engine roughness
The engine roughness is derived from the differences of the segment's duration.
Different statistical methods are used to distinguish between normal changes of the segment duration and the changes due to misfiring.

Detecting of multiple misfiring
If several cylinders are misfiring (e.g. alternating one combustion/one misfire event), the calculated engine roughness values may be so low, that the threshold is not exceeded during misfiring and therefore, misfiring would not be detected.

Based on this fact, the periodicity of the engine roughness value is used as additional information during multiple misfiring. The engine roughness values are filtered and a new multiple filter value is created. If this filter value increases due to multiple misfiring, the roughness threshold is decreased. By applying this strategy, multiple misfiring is detected reliably.

Calculation of the engine roughness threshold value
The engine roughness threshold value consists of the base value, which is determined by a load/speed dependent map.
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Without sufficient sensor wheel adaptation the engine roughness threshold is limited to a speed dependent minimum value.
A change of the threshold towards a smaller value is limited by a variation of filter value (low pass filter).

Determination of misfiring

Random misfire
Misfire detection is performed by comparing the engine roughness threshold value with the engine roughness value.
If the engine roughness value is greater than the roughness threshold value a single misfire is detected. With this misfire determination it is possible to identify misfiring cylinders individually.

Random misfire without valid adaptation
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Continuous misfire on one or multiple cylinders
To avoid noise effects, all engine roughness values are low pass filtered and the detection threshold is corrected by the mean value of the filters. Therefore the amplitude to noise ratio improves and the sensitivity for misfire detection of continuous misfiring cylinders increases.

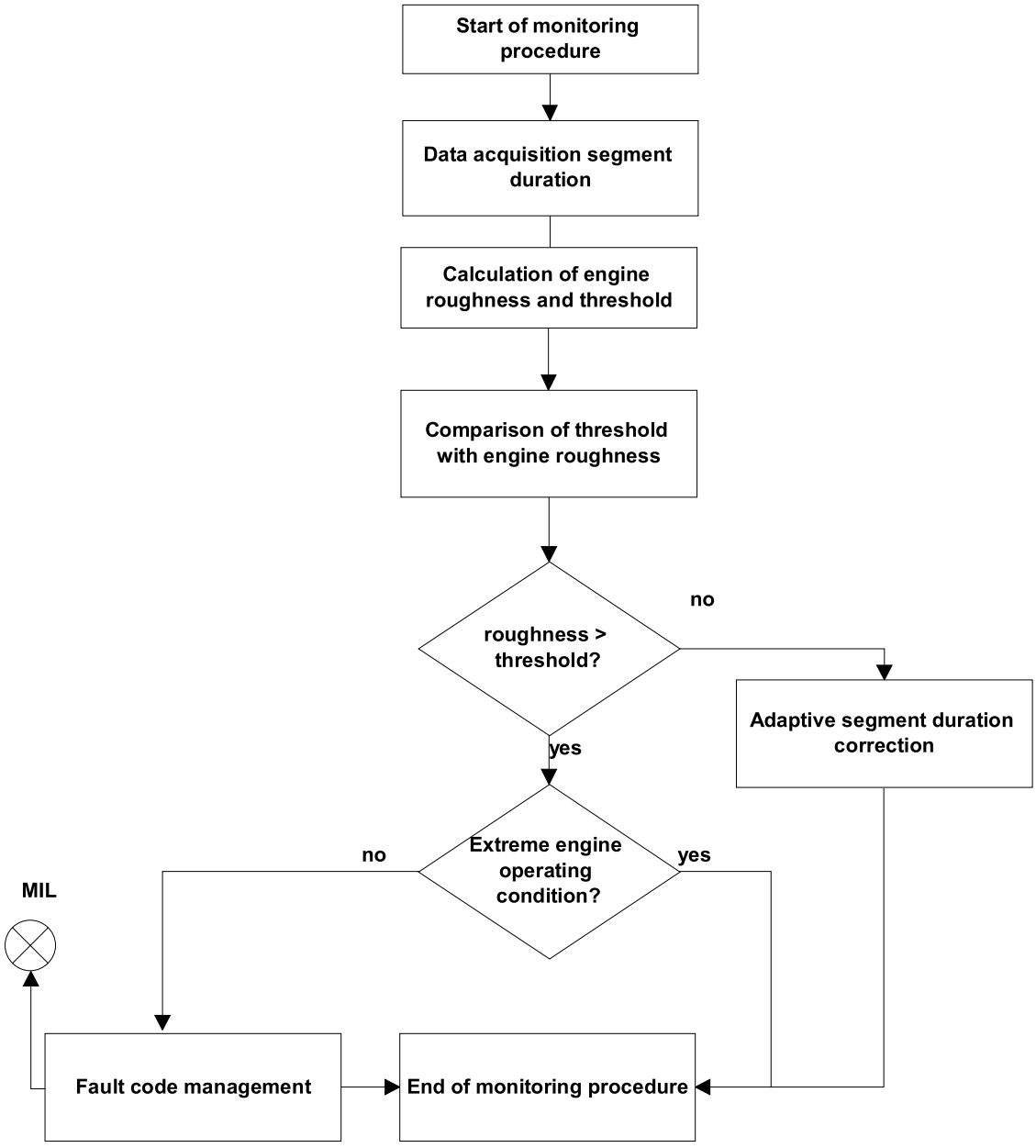
Statistics, Fault processing:
Within an interval of 1,000 crankshaft revolutions, the detected number of misfiring events is totalled for each cylinder. If the sum of cylinder fault counters exceeds a predetermined value, a fault code for emission relevant misfiring is preliminary stored after completion of the first interval after engine has been started or the forth interval during a driving cycle where misfire has been detected.
In the case of misfire detection for one cylinder, the fault is determined by a cylinder selective fault code otherwise the fault code for multiple misfire will be stored additionally.

Within an interval of 200 crankshaft revolutions, the detected numbers of misfire events is weighted and totalled for each cylinder.
The weighting factor is determined by a load/speed dependent map.
If the sum of cylinder fault counters exceeds a predetermined value, the fault code for indicating catalyst damage relevant misfiring is stored and the MIL is illuminated with "on/off"-sequence once per second (blinking).
In case of misfire detection for one cylinder the fault is determined by a cylinder selective fault code otherwise the fault code for multiple misfiring will be stored additionally.
If catalyst damaging misfire does not occur any longer during the first driving cycle, the MIL will return to the previous status of activation (e.g. MIL off) and will remain illuminated continuously during all subsequent driving cycles if catalyst related misfire is detected again. However all misfire events where the catalyst can be damaged are indicated by a blinking MIL. If catalyst damage is not detected under similar conditions in the subsequent driving cycle the temporary fault code will be deleted.

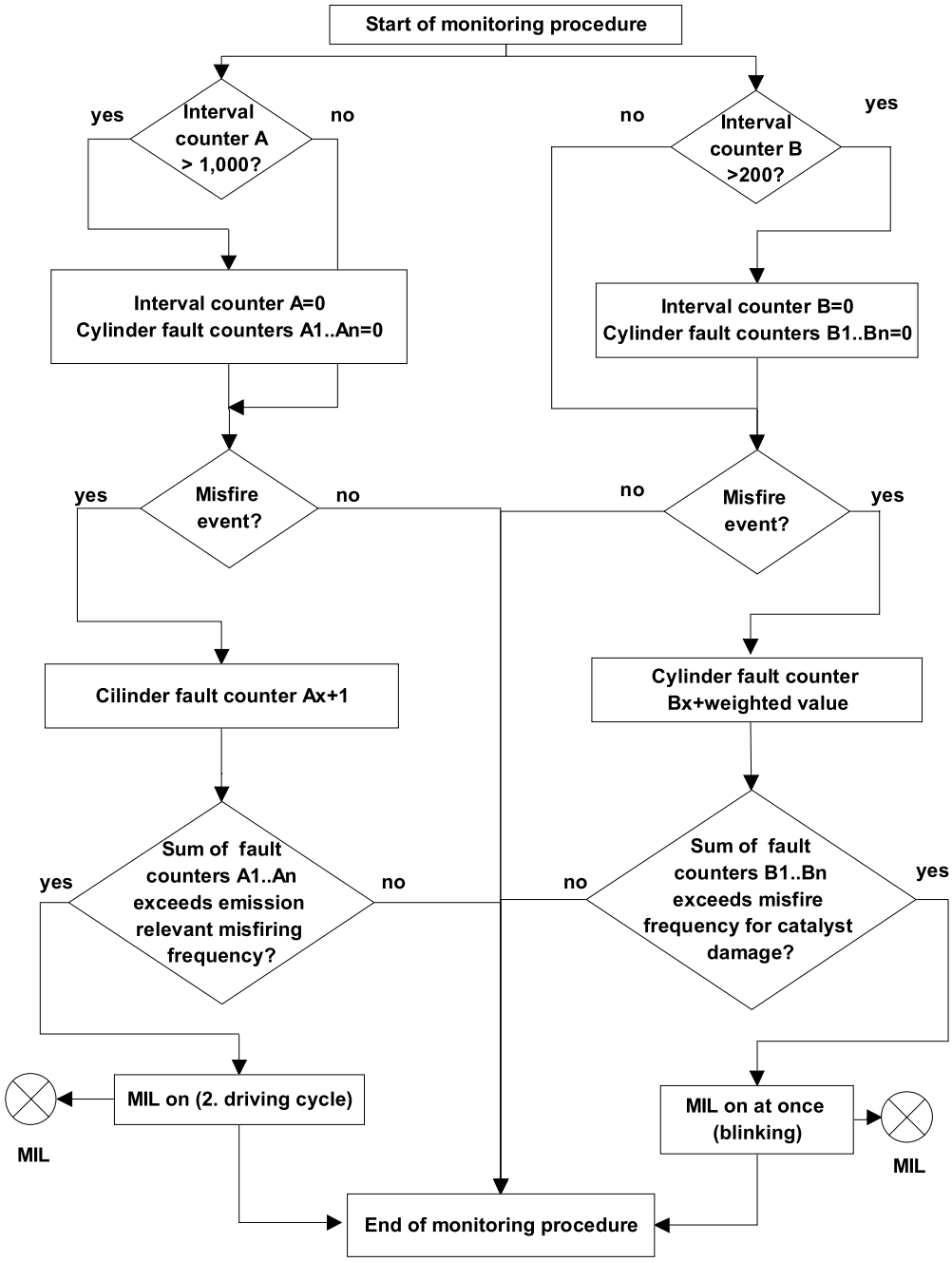
In the case of catalyst related misfire, the Lambda closed loop system is switched to open-loop condition according to the basic air/fuel ratio calculation (Lambda=1).

All misfire counters are reset after each interval.

.03.00.03 Chart(s) and Flow Chart(s)



Paths for misfire and catalyst damaging misfire rate



OBD Group: Applicable to all FSI test groups with Bosch MED9 engine management system

Misfire Detection Parameters by Model and Ignition System for Subject Vehicles

Model	Passat B5				Passat B6	
Engine	**V6 2.8L**	**W8**	**1,8T OEM**	**1,8T R5 Campaign**	**2,0L TFSI**	**3,6L VR6**
Number of misfires leading to fault code storage						
Catalytic converter damage possible	6...119	12...95	12…84	12…84	10…80	7…84
Possibly exceeding emissions thresholds	1,4%...1,9%	60...80	28	28	28	80
Number of misfires leading to flashing of MIL	28…38	12...95	12…84	12…84	10…80	8…85
Number of cycles (1000 revolutions) leading to cylinder deactivation	n/a	4…20	n/a	1…3	5…10	3…10
Max. number of deactivated cylinders	0	3	0	1	1	2 (1 per row)
1…3 Ranges: Actual threshold depens on engine load, speed, temperature, …						

15 –Door / Rear lid open

The warning light comes on when the ignition is on and a door or the rear lid is open. Additionally a warning tone will sound and a warning text is shown in the display of the instrument cluster. This is to remind you to close the door or the rear lid.
The light should go out when the door or the rear lid is closed properly.

16 –Windshield washer fluid level too low

The warning light will come on when the windshield washer fluid level gets too low. Additionally a warning tone will sound and a text is shown in the display of the instrument cluster. This is to remind you to fill up the fluid container.

Refill the windshield washer fluid container – see "Windshield / headlight washer container," chapter *"CHECKING AND FILLING"*, ***Booklet 3.2.***

17 –Fuel level too low

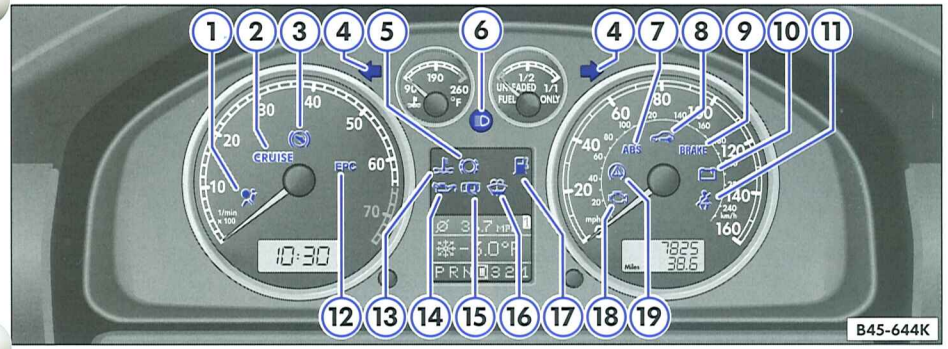
The warning light will come on when the fuel level gets too low. **Time to refuel.** Additionally a warning tone will sound and a text is shown in the display of the instrument cluster. This is to remind you to fill up the tank.

See "Fuel tank," chapter *"FILLING YOUR TANK"*, ***Booklet 3.2.***

18 –Malfunction Indicator Lamp (MIL)

The Malfunction Indicator Lamp (MIL) is part of the On Board Diagnostic system (OBD). The MIL is a required indicator to alert the driver of an emission related malfunction.
The light comes on when the ignition is switched on and will go out after the engine is started and the idle has stabilized. This is to assure you that the MIL is working properly.

If the lamp does not go out after the engine is started, or if it comes on while you're driving, there is a malfunction in the engine system.
If the lamp starts blinking, the catalytic converter could be damaged.
Continue driving **with reduced power** and have the cause corrected right away by an authorized VOLKSWAGEN dealer or a qualified workshop.



Data Link Connector (DLC) for On Board Diagnostic System (OBD)

The On Board Diagnostics in your vehicle monitors the various components of your emission control system. Each controlled component in your engine system has been coded. In case of a malfunction the respective component in question will be identified and the fault stored in the form of a code in the control module's memory.

The stored data can only be displayed with special testing equipment (generic scan tool for OBD) to assure an accurate diagnosis.

To connect the special testing equipment, push the plug into the Data Link Connector (DLC) located to the right of the release lever for engine hood.

Your authorized VOLKSWAGEN dealer or a qualified workshop can interpret the code and make the necessary correction.

19 –Anti-Slip Regulation*

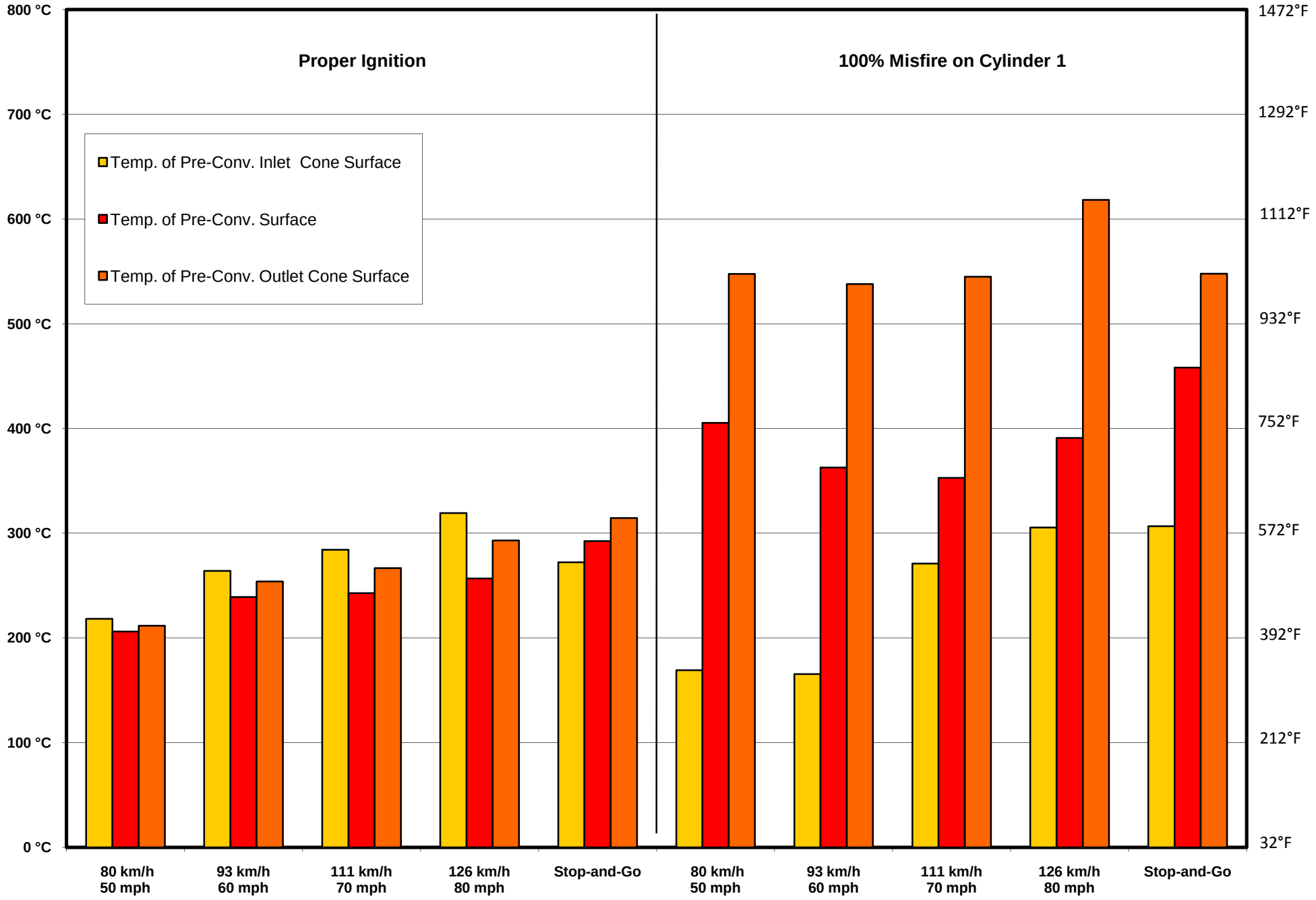
The warning light comes on when the ignition is switched on and goes out again after about 2 seconds.

The light will start flashing when the vehicle is moving if the Anti–Slip Regulation (ASR) is activated.

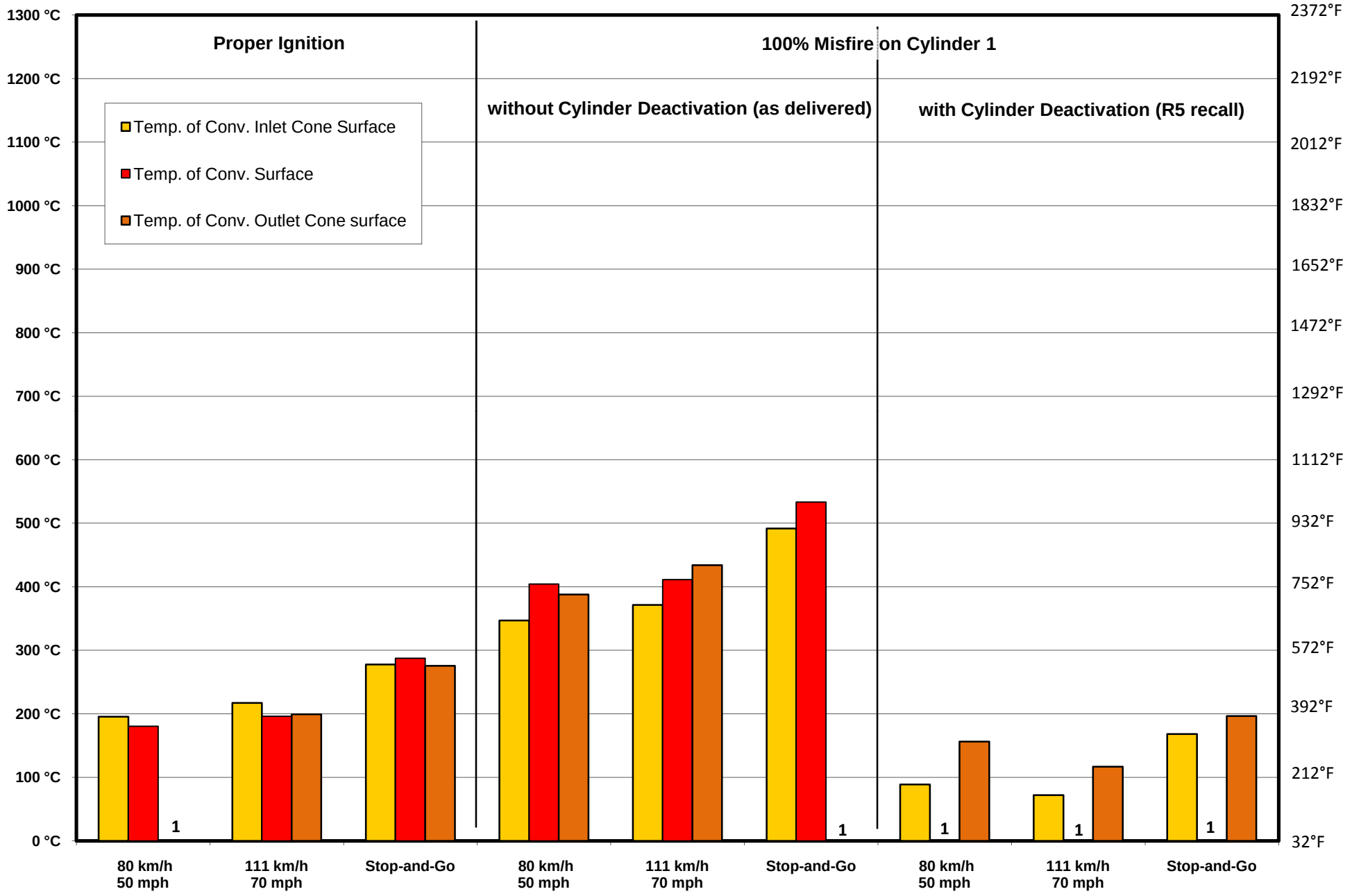
The warning light will light up continuously if the system is switched off manually, or if a malfunction should occur.

Since the ASR operates together with the Anti–lock Brake System (ABS), the ASR warning light will also come on if a fault should occur in the ABS.

See chapter *"OPTIMAL TECHNOLOGY"*, ***Booklet 3.2.*** for more information.



Temperatures measured on roller test bench after approx. 5 minutes driving (steady conditions)



Temperatures measured on roller testbech after appox. 5 min driving (steady conditions), with deactivation measured on Wolfsburg proving ground

1: Sensor Failed

Title 13, California Code Regulations, Section 1968.2, Malfunction and Diagnostic System Requirements for 2004 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines (OBD II)

(3) *MISFIRE MONITORING*

(3.1) Requirement:

(3.1.1) The OBD II system shall monitor the engine for misfire causing catalyst damage and misfire causing excess emissions.

(3.1.2) The OBD II system shall identify the specific cylinder that is experiencing misfire. Manufacturers may request Executive Officer approval to store a general misfire fault code instead of a cylinder specific fault code under certain operating conditions. The Executive Officer shall approve the request upon determining that the manufacturer has submitted data and/or an engineering evaluation that demonstrate that the misfiring cylinder cannot be reliably identified when the conditions occur.

(3.1.3) If more than one cylinder is misfiring, a separate fault code shall be stored indicating that multiple cylinders are misfiring except as allowed below. When identifying multiple cylinder misfire, the manufacturer is not required to also identify each of the misfiring cylinders individually through separate fault codes. For 2005 and subsequent model year vehicles, if more than 90 percent of the detected misfires occur in a single cylinder, the manufacturer may elect to store the appropriate fault code indicating the specific misfiring cylinder in lieu of the multiple cylinder misfire fault code. If, however, two or more cylinders individually have more than 10 percent of the total number of detected misfires, a multiple cylinder fault code must be stored.

(3.2) Malfunction Criteria: The OBD II system shall detect a misfire malfunction pursuant to the following:

(3.2.1) Misfire causing catalyst damage:

(A) Manufacturers shall determine the percentage of misfire evaluated in 200 revolution increments for each engine speed and load condition that would result in a temperature that causes catalyst damage. The manufacturer shall submit documentation to support this percentage of misfire as required in section (i)(2.5). For every engine speed and load condition that this percentage of misfire is determined to be lower than five percent, the manufacturer may set the malfunction criteria at five percent.

(B) Subject to Executive Officer approval, a manufacturer may employ a longer interval than 200 revolutions but only for determining, on a given driving cycle, the first misfire exceedance as provided in section (e)(3.4.1)(A) below. Executive Officer approval shall be granted upon determining that the manufacturer has submitted data and/or an engineering evaluation that demonstrate that catalyst damage would not occur due to unacceptably high catalyst temperatures before the interval has elapsed.

(C) A misfire malfunction shall be detected if the percentage of misfire established in section (e)(3.2.1)(A) is exceeded.

(D) For purposes of establishing the temperature at which catalyst damage occurs as required in section (e)(3.2.1)(A), on 2005 and subsequent model year vehicles, manufacturers may not define catalyst damage at a temperature more severe than what the catalyst system could be

operated at for ten consecutive hours and still meet the applicable FTP full useful life standards.

(3.2.2) Misfire causing emissions to exceed 1.5 times the FTP standards:

(A) Manufacturers shall determine the percentage of misfire evaluated in 1000 revolution increments that would cause emissions from an emission durability demonstration vehicle to exceed 1.5 times any of the applicable FTP standards if the percentage of misfire were present from the beginning of the test. To establish this percentage of misfire, the manufacturer shall utilize misfire events occurring at equally spaced, complete engine cycle intervals, across randomly selected cylinders throughout each 1000-revolution increment. If this percentage of misfire is determined to be lower than one percent, the manufacturer may set the malfunction criteria at one percent.

(B) Subject to Executive Officer approval, a manufacturer may employ other revolution increments. The Executive Officer shall grant approval upon determining that the manufacturer has demonstrated that the strategy would be equally effective and timely in detecting misfire.

(C) A malfunction shall be detected if the percentage of misfire established in section (3.2.2)(A) is exceeded regardless of the pattern of misfire events (e.g., random, equally spaced, continuous, etc.).

(3.3) Monitoring Conditions:

(3.3.1) Manufacturers shall continuously monitor for misfire under the following conditions:

(A) From no later than the end of the second crankshaft revolution after engine start,

(B) While under positive torque conditions during the rise time and settling time for engine speed to reach the desired idle engine speed at engine start-up (i.e., "flare-up" and "flare-down"), and

(C) Under all positive torque engine speeds and load conditions except within the following range: the engine operating region bound by the positive torque line (i.e., engine load with the transmission in neutral), and the two following engine operating points: an engine speed of 3000 rpm with the engine load at the positive torque line, and the redline engine speed (defined in section (c)) with the engine's manifold vacuum at four inches of mercury lower than that at the positive torque line.

(3.3.2) If a monitoring system cannot detect all misfire patterns under all required engine speed and load conditions as required in section (e)(3.3.1) above, the manufacturer may request Executive Officer approval to accept the monitoring system. In evaluating the manufacturer's request, the Executive Officer shall consider the following factors: the magnitude of the region(s) in which misfire detection is limited, the degree to which misfire detection is limited in the region(s) (i.e., the probability of detection of misfire events), the frequency with which said region(s) are expected to be encountered in-use, the type of misfire patterns for which misfire detection is troublesome, and demonstration that the monitoring technology employed is not inherently incapable of detecting misfire under required conditions (i.e., compliance can be achieved on other engines). The evaluation shall be based on the following misfire patterns: equally spaced

misfire occurring on randomly selected cylinders, single cylinder continuous misfire, and paired cylinder (cylinders firing at the same crank angle) continuous misfire.

(3.3.3) A manufacturer may request Executive Officer approval of a monitoring system that has reduced misfire detection capability during the portion of the first 1000 revolutions after engine start that a cold start emission reduction strategy that reduces engine torque (e.g., spark retard strategies) is active. The Executive Officer shall approve the request upon determining that the manufacturer has demonstrated that the probability of detection is greater than or equal to 75 percent during the worst case condition (i.e., lowest generated torque) for a vehicle operated continuously at idle (park/neutral idle) on a cold start between 50-86 degrees Fahrenheit and that the technology cannot reliably detect a higher percentage of the misfire events during the conditions.

(3.3.4) A manufacturer may request Executive Officer approval to disable misfire monitoring or employ an alternate malfunction criterion when misfire cannot be distinguished from other effects.

(A) Upon determining that the manufacturer has presented documentation that demonstrates the disablement interval or period of use of an alternate malfunction criterion is limited only to that necessary for avoiding false detection, the Executive Officer shall approve the disablement or use of the alternate malfunction criterion for conditions involving:

(i) rough road,

(ii) fuel cut,

(iii) gear changes for manual transmission vehicles,

(iv) traction control or other vehicle stability control activation such as anti-lock braking or other engine torque modifications to enhance vehicle stability,

(v) off-board control or intrusive activation of vehicle components or diagnostics during service or assembly plant testing,

(vi) portions of intrusive evaporative system or EGR diagnostics that can significantly affect engine stability (i.e., while the purge valve is open during the vacuum pull-down of a evaporative system leak check but not while the purge valve is closed and the evaporative system is sealed or while an EGR diagnostic causes the EGR valve to be intrusively cycled on and off during positive torque conditions), or

(vii) engine speed, load, or torque transients due to throttle movements more rapid than occurs over the US06 cycle for the worst case vehicle within each test group.

(B) Additionally, the Executive Officer will approve a manufacturer's request in accordance with sections (e)(17.3), (17.4), and (17.6) to disable misfire monitoring when fuel level is 15 percent or less of the nominal capacity of the fuel tank, when PTO units are active, or while engine coolant temperature is below 20 degrees Fahrenheit. The Executive Officer will approve a request to continue disablement on engine starts when engine coolant temperature is below 20 degrees Fahrenheit at engine start until engine coolant temperature exceeds 70 degrees Fahrenheit.

(C) In general, for 2005 and subsequent model year vehicles, the Executive Officer shall not approve disablement for conditions involving normal air conditioning compressor cycling from on-to-off or off-to-on, automatic transmission gear shifts (except for shifts occurring during wide open throttle operation), transitions from idle to off-idle, normal engine speed or load changes that occur during the engine speed rise time and settling time (i.e., "flare-up" and "flare-down") immediately after engine starting without any vehicle operator-induced actions (e.g., throttle stabs), or excess acceleration (except for acceleration rates that exceed the maximum acceleration rate obtainable at wide open throttle while the vehicle is in gear due to abnormal conditions such as slipping of a clutch).

(D) The Executive Officer may approve misfire monitoring disablement or use of an alternate malfunction criterion for any other condition on a case by case basis upon determining that the manufacturer has demonstrated that the request is based on an unusual or unforeseen circumstance and that it is applying the best available computer and monitoring technology.

(3.3.5) For engines with more than eight cylinders that cannot meet the requirements of section (e)(3.3.1), a manufacturer may request Executive Officer approval to use alternative misfire monitoring conditions. The Executive Officer shall approve the request upon determining that the manufacturer has submitted data and/or an engineering evaluation which demonstrate that misfire detection throughout the required operating region cannot be achieved when employing proven monitoring technology (i.e., a technology that provides for compliance with these requirements on other engines) and provided misfire is detected to the fullest extent permitted by the technology. However, the Executive Officer may not grant the request if the misfire detection system is unable to monitor during all positive torque operating conditions encountered during an FTP cycle.

(3.4) MIL Illumination and Fault Code Storage:

(3.4.1) Misfire causing catalyst damage. Upon detection of the percentage of misfire specified in section (e)(3.2.1) above, the following criteria shall apply for MIL illumination and fault code storage:

(A) Pending fault codes

(i) A pending fault code shall be stored immediately if, during a single driving cycle, the specified percentage of misfire is exceeded three times when operating in the positive torque region encountered during an FTP cycle or is exceeded on a single occasion when operating at any other engine speed and load condition in the positive torque region defined in section (e)(3.3.1).

(ii) Immediately after a pending fault code is stored as specified in section (e)(3.4.1)(A)(i) above, the MIL shall blink once per second at all times while misfire is occurring during the driving cycle.

a. The MIL may be extinguished during those times when misfire is not occurring during the driving cycle.

b. If, at the time a misfire malfunction occurs, the MIL is already illuminated for a malfunction other than misfire, the MIL shall blink as previously specified in section (e)(3.4.1)(A)(ii) while misfire is

occurring. If misfiring ceases, the MIL shall stop blinking but remain illuminated as required by the other malfunction.

(B) Confirmed fault codes

(i) If a pending fault code for exceeding the percentage of misfire set forth in section (e)(3.2.1) is stored, the OBD II system shall immediately store a confirmed fault code if the percentage of misfire specified in section (e)(3.2.1) is again exceeded one or more times during either: (a) the driving cycle immediately following the storage of the pending fault code, regardless of the conditions encountered during the driving cycle; or (b) on the next driving cycle in which similar conditions (see section (c)) to the engine conditions that occurred when the pending fault code was stored are encountered.

(ii) If a pending fault code for exceeding the percentage of misfire set forth in section (e)(3.2.2) is stored from a previous drive cycle, the OBD II system shall immediately store a confirmed fault code if the percentage of misfire specified in section (e)(3.2.1) is exceeded one or more times regardless of the conditions encountered.

(iii) Upon storage of a confirmed fault code, the MIL shall blink as specified in subparagraph (e)(3.4.1)(A)(ii) above as long as misfire is occurring and the MIL shall remain continuously illuminated if the misfiring ceases.

(C) Erasure of pending fault codes

Pending fault codes shall be erased at the end of the next driving cycle in which similar conditions to the engine conditions that occurred when the pending fault code was stored have been encountered without any exceedance of the specified percentage of misfire. The pending code may also be erased if similar driving conditions are not encountered during the next 80 driving cycles subsequent to the initial detection of a malfunction.

(D) Exemptions for vehicles with fuel shutoff and default fuel control.

Notwithstanding sections (e)(3.4.1)(A) and (B) above, in vehicles that provide for fuel shutoff and default fuel control to prevent over fueling during catalyst damage misfire conditions, the MIL need not blink. Instead, the MIL may illuminate continuously in accordance with the requirements for continuous MIL illumination in sections (e)(3.4.1)(B)(iii) above upon detection of misfire, provided that the fuel shutoff and default control are activated as soon as misfire is detected. Fuel shutoff and default fuel control may be deactivated only to permit fueling outside of the misfire range. Manufacturers may also periodically, but not more than once every 30 seconds, deactivate fuel shutoff and default fuel control to determine if the specified percentage of misfire for catalyst damage is still being exceeded. Normal fueling and fuel control may be resumed if the specified percentage of misfire for catalyst damage is no longer being exceeded.

(E) Manufacturers may request Executive Officer approval of strategies that continuously illuminate the MIL in lieu of blinking the MIL during extreme catalyst damage misfire conditions (i.e., catalyst damage misfire occurring at all engine speeds and loads). Executive Officer approval shall be

granted upon determining that the manufacturer employs the strategy only when catalyst damage misfire levels cannot be avoided during reasonable driving conditions and the manufacturer has demonstrated that the strategy will encourage operation of the vehicle in conditions that will minimize catalyst damage (e.g., at low engine speeds and loads).

(3.4.2) Misfire causing emissions to exceed 1.5 times the FTP standards. Upon detection of the percentage of misfire specified in section (e)(3.2.2), the following criteria shall apply for MIL illumination and fault code storage:

(A) Misfire within the first 1000 revolutions after engine start.

(i) A pending fault code shall be stored no later than after the first exceedance of the specified percentage of misfire during a single driving cycle if the exceedance occurs within the first 1000 revolutions after engine start (defined in section (c)) during which misfire detection is active.

(ii) If a pending fault code is stored, the OBD II system shall illuminate the MIL and store a confirmed fault code within ten seconds if an exceedance of the specified percentage of misfire is again detected in the first 1000 revolutions during any subsequent driving cycle, regardless of the conditions encountered during the driving cycle.

(iii) The pending fault code shall be erased at the end of the next driving cycle in which similar conditions to the engine conditions that occurred when the pending fault code was stored have been encountered without an exceedance of the specified percentage of misfire. The pending code may also be erased if similar conditions are not encountered during the next 80 driving cycles immediately following the initial detection of the malfunction.

(B) Exceedances after the first 1000 revolutions after engine start.

(i) A pending fault code shall be stored no later than after the fourth exceedance of the percentage of misfire specified in section (e)(3.2.2) during a single driving cycle.

(ii) If a pending fault code is stored, the OBD II system shall illuminate the MIL and store a confirmed fault code within ten seconds if the percentage of misfire specified in section (e)(3.2.2) is again exceeded four times during: (a) the driving cycle immediately following the storage of the pending fault code, regardless of the conditions encountered during the driving cycle; or (b) on the next driving cycle in which similar conditions (see section (c)) to the engine conditions that occurred when the pending fault code was stored are encountered.

(iii) The pending fault code may be erased at the end of the next driving cycle in which similar conditions to the engine conditions that occurred when the pending fault code was stored have been encountered without an exceedance of the specified percentage of misfire. The pending code may also be erased if similar conditions are not encountered during the next 80 driving cycles immediately following initial detection of the malfunction.

(3.4.3) Storage of freeze frame conditions.

(A) A manufacturer shall store and erase freeze frame conditions either in conjunction with storing and erasing a pending fault code or in conjunction with storing and erasing a confirmed fault code.

(B) If freeze frame conditions are stored for a malfunction other than misfire or fuel system malfunction (see section (e)(6)) when a fault code is stored as specified in section (e)(3.4) above, the stored freeze frame information shall be replaced with freeze frame information regarding the misfire malfunction.

(3.4.4) Storage of misfire conditions for similar conditions determination. Upon detection of misfire under sections (e)(3.4.1) or (3.4.2), manufacturers shall store the following engine conditions: engine speed, load, and warm-up status of the first misfire event that resulted in the storage of the pending fault code.

(3.4.5) Extinguishing the MIL. The MIL may be extinguished after three sequential driving cycles in which similar conditions have been encountered without an exceedance of the specified percentage of misfire.

(4) *EVAPORATIVE SYSTEM MONITORING*

(4.1) Requirement: The OBD II system shall verify purge flow from the evaporative system and shall monitor the complete evaporative system, excluding the tubing and connections between the purge valve and the intake manifold, for vapor leaks to the atmosphere. Individual components of the evaporative system (e.g. valves, sensors, etc.) shall be monitored in accordance with the comprehensive components requirements in section (e)(15) (e.g., for circuit continuity, out of range values, rationality, proper functional response, etc.). Vehicles not required to be equipped with evaporative emission systems shall be exempt from monitoring of the evaporative system.

(4.2) Malfunction Criteria:

(4.2.1) For purposes of section (e)(4), an orifice shall be defined as an O'Keefe Controls Co. precision metal "Type B" orifice with NPT connections with a diameter of the specified dimension (e.g., part number B-20-SS for a stainless steel 0.020 inch diameter orifice).

(4.2.2) The OBD II system shall detect an evaporative system malfunction when any of the following conditions exist:

(A) No purge flow from the evaporative system to the engine can be detected by the OBD II system;

(B) The complete evaporative system contains a leak or leaks that cumulatively are greater than or equal to a leak caused by a 0.040 inch diameter orifice; or

(C) The complete evaporative system contains a leak or leaks that cumulatively are greater than or equal to a leak caused by a 0.020 inch diameter orifice.

(4.2.3) On vehicles with fuel tank capacity greater than 25.0 gallons, a manufacturer may request the Executive Officer to revise the orifice size in sections (e)(4.2.2)(B) and/or (C) if the most reliable monitoring method available cannot reliably detect a system leak of the magnitudes specified. The Executive Officer shall approve the request upon determining that

used in 40 CFR 86.082-2.

(7.2) The ARB or its designee may install appropriately deteriorated or malfunctioning components in an otherwise properly functioning test vehicle of a test group represented by the demonstration test vehicle(s) (or simulate a deteriorated or malfunctioning component) in order to test any of the components or systems required to be tested in section (h). Upon request by the Executive Officer, the manufacturer shall make available a vehicle and all test equipment (e.g., malfunction simulators, deteriorated components, etc.) necessary to duplicate the manufacturer's testing. The Executive Officer shall make the request within six months of reviewing and approving the demonstration test vehicle data submitted by the manufacturer for the specific test group.

(7.3) Vehicles with OBD II systems represented by the demonstration vehicle(s) may be recalled for corrective action if a representative sample of vehicles uniformly fails to meet the requirements of section (h).

(i) *CERTIFICATION DOCUMENTATION.*

(1) When submitting an application for certification of a test group, the manufacturer shall submit the following documentation. If any of the items listed below are standardized for all of a manufacturer's test groups, the manufacturer may, for each model year, submit one set of documents covering the standardized items for all of its test groups.

(1.1) For the required documentation not standardized across all test groups, the manufacturer may propose to the Executive Officer that documentation covering a specified combination of test groups be used. These combinations shall be known as "OBD II groups". Executive Officer approval shall be granted for those groupings that include test groups using the same OBD II strategies and similar calibrations. If approved by the Executive Officer, the manufacturer may submit one set of documentation from one or more representative test group(s) that are a part of the OBD II group. The Executive Officer shall determine whether a selected test group(s) is representative of the OBD II group as a whole. To be approved as representative, the test group(s) must possess the most stringent emission standards and OBD II monitoring requirements and cover all of the emission control devices within the OBD II group.

(1.2) With Executive Officer approval, one or more of the documentation requirements of section (i) may be waived or modified if the information required would be redundant or unnecessarily burdensome to generate.

(1.3) To the extent possible, the certification documentation shall use SAE J1930 terms, abbreviations, and acronyms.

(2) The following information shall be submitted as "Part 1" of the certification application. Except as provided below for demonstration data, the Executive Officer will not issue an Executive Order certifying the covered vehicles without the information having been provided. The information must include:

(2.1) A description of the functional operation of the OBD II system including a complete written description for each monitoring strategy that outlines every step in the decision making process of the monitor. Algorithms, diagrams, samples of data, and/or other graphical representations of the monitoring

strategy shall be included where necessary to adequately describe the information.

(2.2) A table, in the standardized format detailed in Attachment A of ARB Mail-Out #95-20, May 22, 1995, incorporated by reference.

(2.2.1) The table must include the following information for each monitored component or system (either computer-sensed or -controlled) of the emission control system:

(A) corresponding fault code
(B) monitoring method or procedure for malfunction detection
(C) primary malfunction detection parameter and its type of output signal
(D) fault criteria limits used to evaluate output signal of primary parameter
(E) other monitored secondary parameters and conditions (in engineering units) necessary for malfunction detection
(F) monitoring time length and frequency of checks
(G) criteria for storing fault code
(H) criteria for illuminating malfunction indicator light
(I) criteria used for determining out of range values and input component rationality checks

(2.2.2) Wherever possible, the table shall use the following engineering units:

(A) Degrees Celsius (°C) for all temperature criteria
(B) KiloPascals (KPa) for all pressure criteria related to manifold or atmospheric pressure
(C) Grams (g) for all intake air mass criteria
(D) Pascals (Pa) for all pressure criteria related to evaporative system vapor pressure
(E) Miles per hour (mph) for all vehicle speed criteria
(F) Relative percent (%) for all relative throttle position criteria (as defined in SAE J1979)
(G) Voltage (V) for all absolute throttle position criteria (as defined in SAE J1979)
(H) Per crankshaft revolution (/rev) for all changes per ignition event based criteria (e.g., g/rev instead of g/stroke or g/firing)
(I) Per second (/sec) for all changes per time based criteria (e.g., g/sec)
(J) Percent of nominal tank volume (%) for all fuel tank level criteria

(2.3) A logic flowchart describing the step by step evaluation of the enable criteria and malfunction criteria for each monitored emission-related component or system.

(2.4) Emission test data, a description of the testing sequence (e.g., the number and types of preconditioning cycles), approximate time (in seconds) of MIL illumination during the test, fault code(s) and freeze frame information stored at the time of detection, corresponding SAE J1979 test results (e.g. Mode/Service $06) stored during the test, and a description of the modified or deteriorated components used for fault simulation with respect to the demonstration tests specified in section (h). The Executive Officer may approve conditional certification of a test group prior to the submittal of this data for ARB review and approval. Factors to be considered by the Executive Officer in approving the late submission of information identified in section

(i)(2.4) shall include the reason for the delay in the data collection, the length of time until data will be available, and the demonstrated previous success of the manufacturer in submitting the data prior to certification.

(2.5) For gasoline vehicles, data supporting the misfire monitor, including:

(2.5.1) The established percentage of misfire that can be tolerated without damaging the catalyst over the full range of engine speed and load conditions.

(2.5.2) Data demonstrating the probability of detection of misfire events of the misfire monitoring system over the full engine speed and load operating range for the following misfire patterns: random cylinders misfiring at the malfunction criteria established in section (e)(3.2.2), one cylinder continuously misfiring, and paired cylinders continuously misfiring.

(2.5.3) Data identifying all disablement of misfire monitoring that occurs during the FTP and US06 cycles. For every disablement that occurs during the cycles, the data should identify: when the disablement occurred relative to the driver's trace, the number of engine revolutions that each disablement was present for, and which disable condition documented in the certification application caused the disablement. The data shall be submitted in the standardized format detailed in Attachment A: Misfire Disablement and Detection Chart of ARB Mail-Out #06-23, December 21, 2006, incorporated by reference.

(2.5.4) Manufacturers are not required to use the durability demonstration vehicle to collect the misfire data for sections (i)(2.5.1) though (2.5.3).

(2.6) Data supporting the limit for the time between engine starting and attaining the designated heating temperature for after-start heated catalyst systems.

(2.7) For diesel vehicle monitors in section (f) that are required to indicate a malfunction before emissions exceed an emission threshold based on any applicable standard (e.g., 1.5 times any of the applicable standards), the test cycle and standard determined by the manufacturer to be the most stringent for each applicable monitor in accordance with section (d)(6.1)

(2.8) A listing of all electronic powertrain input and output signals (including those not monitored by the OBD II system) that identifies which signals are monitored by the OBD II system.

(2.9) A written description of all parameters and conditions necessary to begin closed loop operation.

(2.10) A summary table identifying every test group and each of the OBD II phase-in requirements that apply to each test group.

(2.11) A written identification of the communication protocol utilized by each test group for communication with an SAE J1978 scan tool.

(2.12) A pictorial representation or written description of the diagnostic connector location including any covers or labels.

(2.13) A written description of the method used by the manufacturer to meet the requirements of sections (e)(9) and (f)(10) for PCV and CV system monitoring including diagrams or pictures of valve and/or hose connections.

(2.14) A cover letter identifying all concerns and deficiencies applicable to the equivalent previous model year test group and the changes and/or resolution of each concern or deficiency for the current model year test group.

(2.15) For diesel engine vehicles, a written description of each AECD utilized by the manufacturer including the identification of each EI-AECD relative to the data required to be tracked and reported in the standardized format specified in section (g)(6) (e.g., EI-AECD #1 is "engine overheat protection as determined by coolant temperature greater than..."), the sensor signals and/or calculated values used to invoke each AECD, the engineering data and/or analysis demonstrating the need for such an AECD, the actions taken when each AECD is activated, the expected in-use frequency of operation of each AECD, and the expected emission impact from each AECD activation.

(2.16) A checklist of all the malfunction criteria in sections (e) or (f) and the corresponding diagnostic noted by fault code for each malfunction criterion. The formats of the checklists are detailed in Attachments F and G of ARB Mail-Out #MSC 06-23, December 21, 2006, incorporated by reference.

(2.17) Any other information determined by the Executive Officer to be necessary to demonstrate compliance with the requirements of this regulation.

(3) "Part 2". The following information shall be submitted by January 1st of the applicable model year:

(3.1) A listing and block diagram of the input parameters used to calculate or determine calculated load values and the input parameters used to calculate or determine fuel trim values.

(3.2) A scale drawing of the MIL and the fuel cap indicator light, if present, which specifies location in the instrument panel, wording, color, and intensity.

(4) "Part 3". The following information shall be submitted upon request of the Executive Officer:

(4.1) Data supporting the criteria used to detect a malfunction when catalyst deterioration causes emissions to exceed the applicable malfunction criteria specified in sections (e) and (f).

(4.2) Data supporting the criteria used to detect evaporative system leaks.

(4.3) Any other information determined by the Executive Officer to be necessary to demonstrate compliance with the requirements of this regulation.

(j) *PRODUCTION VEHICLE EVALUATION. TESTING.*

(1) *Verification of Standardized Requirements.*

(1.1) Requirement: For 2005 and subsequent model year vehicles, manufacturers shall perform testing to verify that all vehicles meet the requirements of section (g)(3) and (g)(4) relevant to proper communication of required emission-related messages to an SAE J1978 scan tool.

(1.2) Selection of Test Vehicles: Manufacturers shall perform this testing every model year on one production vehicle from every unique calibration within two months of the start of normal production for that calibration. Manufacturers may request Executive Officer approval to group multiple calibrations together and test one representative calibration per group. The Executive Officer shall approve the request upon finding that the software designed to comply with the standardization requirements of section (g) in the representative calibration vehicle is identical (e.g., communication protocol message timing, number of supported data stream parameters, etc.) to all others in the group

PE10-027

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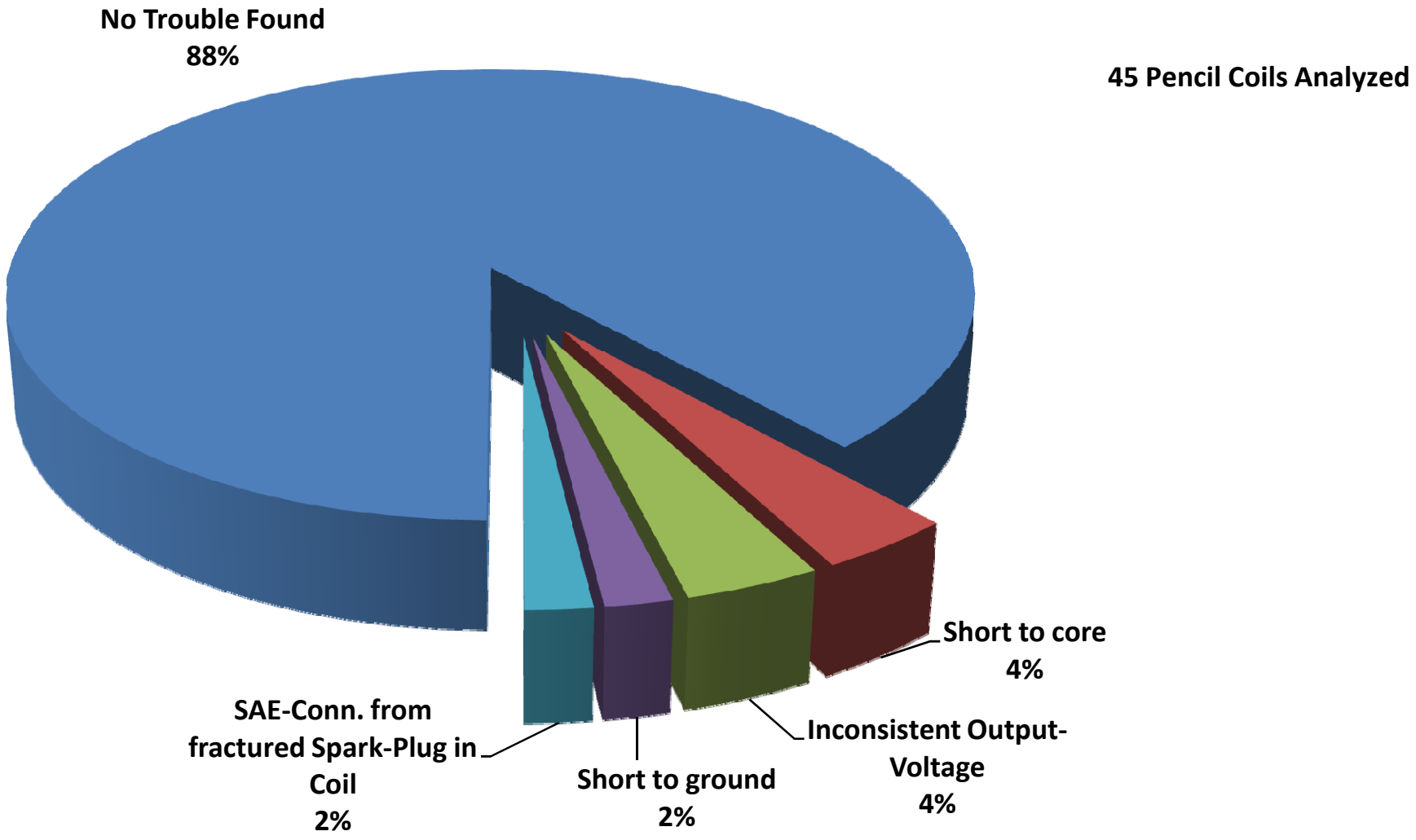
10-4-2010

EXHIBIT TO REQUEST 11

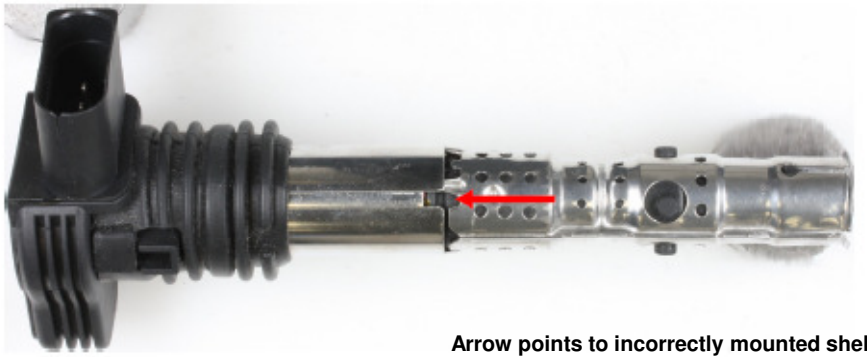
Lab Report 11-Z-10-03225
Attachment 09-40



Aftermarket Part
Ref.: 11-Z-09-09730

OEM Part
06B 905 115 R

Aftermarket Part
Ref.: 11-Z-09-09730



Arrow points to incorrectly mounted shell

OEM Part
06B 905 115 R

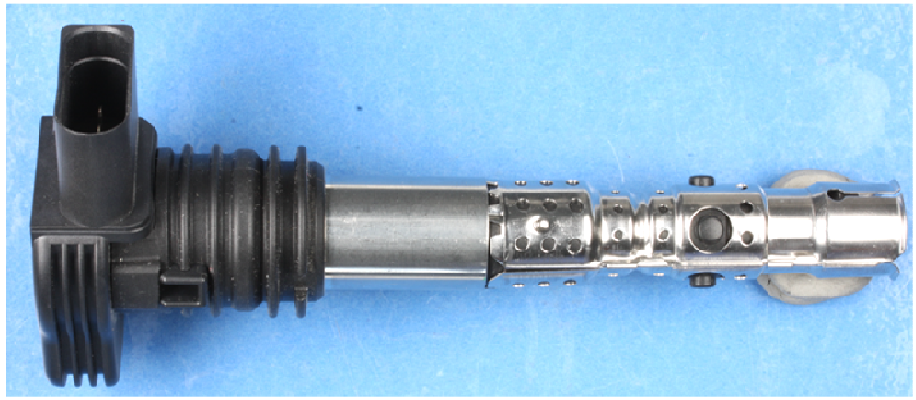


Table 2.9.
Highway Vehicle Fires, by Factor Contributing to Ignition
2003-2007 Annual Averages

Factor Contributing to Ignition	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Mechanical failure or malfunction	**130,700**	**(49%)**	**49**	**(11%)**	**413**	**(31%)**	**$410**	**(40%)**
Unclassified mechanical failure or malfunction	79,400	(30%)	12	(3%)	195	(15%)	$276	(27%)
Leak or break	30,500	(11%)	36	(8%)	148	(11%)	$90	(9%)
Backfire	9,800	(4%)	0	(0%)	48	(4%)	$22	(2%)
Worn out	9,500	(4%)	0	(0%)	17	(1%)	$17	(2%)
Electrical failure or malfunction	**61,500**	**(23%)**	**2**	**(0%)**	**185**	**(14%)**	**$206**	**(20%)**
Unclassified electrical failure or malfunction	28,800	(11%)	0	(0%)	61	(5%)	$98	(10%)
Unspecified short circuit arc	16,600	(6%)	0	(0%)	63	(5%)	$61	(6%)
Short circuit arc from defective or worn insulation	6,900	(3%)	0	(0%)	14	(1%)	$18	(2%)
Short circuit arc from mechanical damage	4,100	(2%)	2	(0%)	15	(1%)	$13	(1%)
Arc or spark from operating equipment	3,400	(1%)	0	(0%)	25	(2%)	$11	(1%)
Arc from faulty contact or broken conductor	1,400	(1%)	0	(0%)	8	(1%)	$4	(0%)
Other factors	**86,400**	**(32%)**	**421**	**(96%)**	**828**	**(62%)**	**$464**	**(45%)**
Unclassified factor contributed to ignition	17,600	(7%)	63	(14%)	123	(9%)	$94	(9%)
Exposure fire	13,600	(5%)	13	(3%)	19	(1%)	$82	(8%)
Collision, knock down, run over, or overturn	8,200	(3%)	255	(58%)	226	(17%)	$88	(9%)
Heat source too close to combustibles	6,600	(2%)	8	(2%)	60	(5%)	$26	(3%)
Abandoned or discarded material or product	6,200	(2%)	3	(1%)	29	(2%)	$24	(2%)
Flammable liquid or gas spilled	5,800	(2%)	39	(9%)	109	(8%)	$27	(3%)
Unclassified misuse of material or product	5,700	(2%)	9	(2%)	53	(4%)	$21	(2%)
Unclassified operational deficiency	4,000	(2%)	2	(0%)	17	(1%)	$14	(1%)
Equipment not being operated properly	2,200	(1%)	9	(2%)	30	(2%)	$10	(1%)
Flammable liquid used to kindle fire	2,100	(1%)	5	(1%)	9	(1%)	$15	(1%)
Cutting or welding too close to combustible	1,800	(1%)	1	(0%)	23	(2%)	$4	(0%)
Installation deficiency	1,400	(1%)	0	(0%)	11	(1%)	$2	(0%)
Other known factor	11,100	(4%)	15	(3%)	120	(9%)	$57	(6%)
Total fires	**267,600**	**(100%)**	**441**	**(100%)**	**1,326**	**(100%)**	**$1,023**	**(100%)**
Total entries*	**278,700**	**(104%)**	**472**	**(107%)**	**1,426**	**(108%)**	**$1,079**	**(106%)**

* Multiple entries are allowed, resulting in sums greater than the totals.