PE09-024
HONDA
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ATTACHMENT Q8
QIS
DOC 1 PAGE 2, DOC 2 PG 4, DOC 3 PG 7, DOC 4 PG 10 AND Q8 DOC 5 PG 21

PE09-024
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Q8 DOC 1 ODYSSEY QIS

PAGE CONTAINS CONFIDENTIAL INFORMATION

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D: Design

QUALITY IMPROVEMENT SHEET (Q.I.S.)

Issued by:
HAM M.Q.

COUNTERMEASURE CONTROL #	RESPONSIBLE PLANT AND DEPARTMENT		RANK
SHJA-070511-03	Honda Mfg. Alabama	6180 HMA AQ-AG	B

INFO ID	A. H. NUMBER	INFORMATION SOURCE	MODEL
WAR-206523-876901	2	Warranty Claim	RL3

ODOMETER	SUPPLIER	VIN
2538 mi		5FNRL38867B[redacted]

MARKET INFORMATION ISSUER	MARKET QUALITY ISSUER	ENGINE NUMBER	TRANSMISSION NUMBER
[redacted]	[redacted]	J35A7-3011933	B36A9032249

PRIMARY FAILED PART NUMBER AND DESCRIPTION		RELATED A.H. TECHLINE CODE
57110-SHJ	MODULATOR ASSY.	4150: BRAKE FEELING (SOFT, LOW,

PRIMARY CAUSAL PART NUMBER AND DESCRIPTION

PRIMARY RELATED WARRANTY CLASS

DEALER/STATE
206523
OR

PRODUCTION DATE
06/10/16

SALES DATE
06/11/04

OCCURRENCE DATE
07/03/13

MQ RECEIVE DATE
07/03/19

THEME UP DATE
07/05/11

ANALYSIS RECEIVE DATE
07/05/17

CAUSE ANALYSIS APPROVAL DATE
07/05/24

RESPONSIBLE DPT ISSUE DATE
07/05/24

COUNTERMEASURE REPLY DATE
08/01/10

1st COUNTERMEASURE APPLICATION DATE
08/08/07

Finish Date
09/02/10

TITLE
07m HMA Odyssey Brake Pedal Low/Soft/Fades

OCCURRENCE DESCRIPTION
CUSTOMERS ARE COMPLAINING THAT THE BRAKE PEDAL FEELS SOFT/SPONGY OR THE BRAKE PEDAL FADES TO THE FLOOR AFTER THE VEHICLE HAS STOPPED. Dealers are replacing the brake master cylinder(57%) or bleeding the brake lines(43%) to eliminate air in the brake system as the repair for this problem

MARKET INFORMATION INVESTI-GATION
07M HMA Ody: Tot.claims:[redacted], Def%:[redacted], Avg MTF: [redacted], Avg DTF: [redacted], Tot.Cost; $8,321. 07M trend much higher than 06M. Rates for L1 & L2 2nd Shift are highest. L2 2nd Shift has highest overall rates of all four shifts. 07M "FADES TO FLOOR" contention: [redacted] master cyl replaced, [redacted] bled system or no parts replaced, "BRAKES FEEL SOFT" contention: [redacted] master cyl replaced, [redacted] bled system or no parts replaced,"NTF" contention: [redacted] bled system or no parts replaced,

MARKET QUALITY CAUSE ANALYSIS
QA investigation started with suspension of brake fill process due to MI information indicating a large spike during start up. Additional activity included checking change points to the modulator for 07M model year. The self check sequence changed for 07M Odyssey as a C/M for market complaints of noise for 05M and 06M years. PPH with the Nissin modulator on the Accord, TSX, TL and RL indicated similar customer contentions (Soft Pedal) with similar self check changes.
Field and in house anaylsis determined the cause of the soft brake contention is from air in the brake system. Further investigation proved that the air was located in the high pressure side of the modulator and possibly trapped in the high pressure damper. A bleeding procedure was created and called "superbleed" and determined to be effective as a soft C/M for the market until the root cause was determined and a permanent C/M could be applied.

VIEW BEFORE COUNTERMEASURE

07M Odyssey Modulator Self check sequence

[redacted]

VIEW AFTER COUNTERMEASURE

09M Odyssey Modulator Self check sequence

[redacted]

QIS PRINT DATE: 6/8/2009 TIME: 08:09:33 AM

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RESPONSIBLE DEPARTMENT CAUSE ANALYSIS

The root cause has been determined that the vacuum created in the low side of the pump circuit caused from cycling the motor during the initial diagnosis (self check sequence) is not being relieved, therefore drawing air into the modulator.
The permanent C/M is to cycle the ESV (Electronic Solenoid valve) during initial diagnosis to relieve vacuum in the low pressure circuit.

COUNTERMEASURE CONTENTS

At Continental Teves Corporation in Japan comparison bench testing show [redacted]cc's of air entered market return modulators after [redacted] test cycles. The same two modulators were tested again but with cycling the ESV (Electronic Solenoid valve) to relieve internal vacuum and after [redacted] test cycles only [redacted]cc's of air was present during bleeding.

HMA actual vehicle testing indicated one of three vehicles had air enter modulator after [redacted]mi and [redacted] key cycles. Another test unit showed cycling the ESV during initial self-check diagnosis (relieve internal vacuum) to be an effective C/M for soft pedal feel caused from air intrusion.

C/M software has been applied to 09M Odyssey modulator by design change SHJW-F-0041 in order to improve product quality. Application timing is set for DAN lot application. Service side application timing for MASK ROM is at mass production timing and in accordance to design change [redacted].

COUNTERMEASURE BY
07/09/21

COUNTERMEASURE CONTROL #
SHJA-070511-03

SOLD PRODUCT TREATMENT
AH:
NORMAL WARRANTY
CH:
NORMAL WARRANTY
JH:
EH:
NORMAL WARRANTY
OTHERS:
NORMAL WARRANTY

STOCKED PRODUCT TREATMENT
NO TREATMENT

PART STOCK CHANGE
NO CHANGE

AFTER SERVICE PART NUMBER
57110SHJA610M1

SERVICE BULLETIN NUMBER

DESIGN CHANGE NUMBER
[redacted]

COUNTERMEASURE APPLICATION INFORMATION

C/M TYPE	VEHICLE IDENTIFICATION NUMBER	C/M APPLICATION DATE	ENGINE NUMBER	TRANSMISSION NUMBER	NOTES
HARD	5FNRL38719B000220	08/08/07	J35A7-5000218	P36A7000042	VIN Finder

RECOMMENDED FIELD ACTION
Install C/M modulator

COUNTERMEASURE EFFECTIVENESS
No known claims to date. Recreation test using mode known to cause failure with pre-CM part did not cause failure with CM part.

RECOGNITION SIGNATURES

CHIEF ENGINEER	MQ MANAGER	MQ STAFF ENGINEER		RESPONSIBLE DEPT. MANAGER
		REPLY	ISSUE	

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DB: Supplier Design

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COUNTERMEASURE CONTROL #	RESPONSIBLE PLANT AND DEPARTMENT		RANK
SDBA-030819-03	Marysville Auto Plant	6170 AQG: MARKET QUALITY	B

INFO ID	A. H. NUMBER	INFORMATION SOURCE	MODEL
WAR-208271-775670	2	Warranty Claim	CM6

ODOMETER	SUPPLIER	VIN
5377 mi	NISSIN BRAKE OHIO, INC.	1HGCM66893A[redacted]

MARKET INFORMATION ISSUER	MARKET QUALITY ISSUER	ENGINE NUMBER	TRANSMISSION NUMBER
[redacted]	[redacted]	J30A4-1068819	BAYA5068427

PRIMARY FAILED PART NUMBER AND DESCRIPTION	RELATED A.H. TECHLINE CODE
46100- MASTER CYLINDER	4300: ABS WARNING LITE ON, NO C

PRIMARY CAUSAL PART NUMBER AND DESCRIPTION	PRIMARY RELATED WARRANTY CLASS
	*Braking System Abs Modulator Warning Light On

DEALER/STATE
208271
NY

PRODUCTION DATE
03/02/06

SALES DATE
03/03/28

OCCURRENCE DATE
03/07/16

MQ RECEIVE DATE
03/07/22

THEME UP DATE
03/08/19

ANALYSIS RECEIVE DATE
03/08/20

CAUSE ANALYSIS APPROVAL DATE
08/02/18

RESPONSIBLE DPT ISSUE DATE
08/02/18

COUNTERMEASURE REPLY DATE
08/02/19

1st COUNTERMEASURE APPLICATION DATE
07/05/11

Finish Date
08/03/05

TITLE
03M Accord V6 ABS Modulator Replaced - No codes

OCCURRENCE DESCRIPTION
Customers are complaining that their ABS light is on and/or their brake pedal is soft. Dealers are replacing the ABS modulator to correct this problem.

MARKET INFORMATION INVESTI-GATION
[redacted] total claims for 03M Accord V6 ([redacted] claim rate). No trends by line/shift/state/build. [redacted] claims had the master cylinder replaced prior to the ABS modulator replacement. After the modulator replacement, there were no customer comeback for brake issues. 03M Accord V6 claim info: Avg DTF = [redacted], Avg MTF = [redacted], Ttl Cost = [redacted]

MARKET QUALITY CAUSE ANALYSIS
Warranty data shows that the Nissin modulator equipped vehicles have significantly differing warranty rates, depending upon application. While the hydraulic units are very similar or the same, the control unit programming appears to be different. Upon futher investigation of the differences between the modulators, one discriminating factor is evident. The vehicles having the software that opens the suction valve after an ABS operation, have significantly lower warranty rates than the vehicles with software applications that do not open the valve.

Judgement- This appears to be a supplied part issue.

VIEW BEFORE COUNTERMEASURE

[redacted]

VIEW AFTER COUNTERMEASURE

[redacted]

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RESPONSIBLE DEPARTMENT CAUSE ANALYSIS

The cause is directly related to the residual pressure left in the TCS/VSA circuit after an ABS operation. On selected models, the control unit software opened the suction valve, relieving this condition. These models exhibited a significantly lower warranty claim rate than models in which the software did NOT open a valve, relieving the pressure. The best example of the impact the software has is the 2007 TL, which was changed at start up of '07MY.

COUNTERMEASURE CONTENTS

100% inspection of x-rings coming from Nissin

2-17-05: MAP Line 1 began running pump motor during brake fill process in an effort to eliminate trapped air from TCS circuit.
4-19-05: MAP Line 2 began running pump motor during brake fill process in an effort to eliminate trapped air from TCS circuit.

6-26-06:Software opening valve after ABS application has been applied to '07 TL start

7-26-07:Software opening valve after ABS application has been applied to the 2007 Accord as a late year running change

COUNTERMEASURE BY
03/12/23

COUNTERMEASURE CONTROL #
SDBA-030819-03

SOLD PRODUCT TREATMENT
AH:
NORMAL WARRANTY
CH:
NORMAL WARRANTY
JH:
NORMAL WARRANTY
EH:
NORMAL WARRANTY
OTHERS:
NORMAL WARRANTY

STOCKED PRODUCT TREATMENT
NO TREATMENT

PART STOCK CHANGE
NO CHANGE

AFTER SERVICE PART NUMBER

SERVICE BULLETIN NUMBER

DESIGN CHANGE NUMBER
[redacted]

COUNTERMEASURE APPLICATION INFORMATION

C/M TYPE	VEHICLE IDENTIFICATION NUMBER	C/M APPLICATION DATE	ENGINE NUMBER	TRANSMISSION NUMBER	NOTES
HARD	1HGCM66597A[redacted]	07/08/02	J30A5-2116699	BAYA9114023	Software change to oper
HARD	1HGCM81787A	07/07/30	J30A5-2115910	ATC65003492	Software change to oper
HARD	1HGCM66587A	07/07/26	J30A5-2114415	BAYA9111509	Software change to oper
HARD	1HGCM665X7A	07/07/26	J30A5-2114856	BAYA9112488	software change
HARD	1HGCM65507A	07/05/11	J30A5-2094568	ATC65003019	software change
HARD	1HGCM81617A	07/05/07	J30A5-2092844	ATC65002887	software change
HARD	1HGCM65507A	07/04/12	J30A5-2086840	ATC65002859	software change to oper
HARD	1HGCM82217A	07/03/22	J30A5-2080805	BAYA9078763	Software change to oper
HARD	19UUA76507A	06/09/25	J35A8-3500119	BDHA9000154	Software change to oper
HARD	19UUA66225A	05/04/21	J32A3-2054831	BDGA7050787	L2 pump motor run
HARD	1HGCM713X5A	05/04/20	K24A4-3125208	APG68410922	L2 pump motor run
HARD	1HGCM56495A	05/04/19	K24A4-3336556	BCLA7161312	L2 pump motor run

RECOMMENDED FIELD ACTION
Follow service manual procedures in troubleshooting

COUNTERMEASURE EFFECTIVENESS
Based on data from warranty claims, this countermeasure is [redacted] effective in reducing this contention

RECOGNITION SIGNATURES

CHIEF ENGINEER	MQ MANAGER	MQ STAFF ENGINEER		RESPONSIBLE DEPT. MANAGER
		REPLY	ISSUE	

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DB: Supplier Design

Issued by:
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QUALITY IMPROVEMENT SHEET (Q.I.S.)

COUNTERMEASURE CONTROL #	RESPONSIBLE PLANT AND DEPARTMENT	RANK
SCWA-071126-01	North American Logistics 6170 AQG: MARKET QLTY HUB	B

INFO ID	A. H. NUMBER	INFORMATION SOURCE	MODEL
WAR-207436-025732	2	Warranty Claim	YH2

ODOMETER	SUPPLIER	VIN
8 mi	CONTINENTAL-TEVES AG	5J6YH28718L[redacted]

MARKET INFORMATION ISSUER	MARKET QUALITY ISSUER	ENGINE NUMBER	TRANSMISSION NUMBER
[redacted]	[redacted]	K24A8-3600389	BZNA1000083

PRIMARY FAILED PART NUMBER AND DESCRIPTION	RELATED A.H. TECHLINE CODE
57110-SCVA51 MODULATOR ASSY.	4000: CHASSIS GENERAL

PRIMARY CAUSAL PART NUMBER AND DESCRIPTION	PRIMARY RELATED WARRANTY CLASS
	Chassis Brake Master Cylinder/master Power Lea

DEALER/STATE
207436
WV

PRODUCTION DATE
07/06/14

SALES DATE
07/11/12

OCCURRENCE DATE
07/07/30

MQ RECEIVE DATE
07/08/02

THEME UP DATE
07/11/26

ANALYSIS RECEIVE DATE
07/12/04

CAUSE ANALYSIS APPROVAL DATE
08/02/13

RESPONSIBLE DPT ISSUE DATE
08/02/13

COUNTERMEASURE REPLY DATE
08/08/18

1st COUNTERMEASURE APPLICATION DATE
08/07/28

Finish Date
08/08/25

TITLE 07-08M Element Soft Brakes

OCCURRENCE DESCRIPTION Customers are complaining that their brake pedal is fading to the floor while braking. Dealer technicians are either replacing the m/c (67%), bleeding brakes (24%), or replacing the modulator to fix (8%). 1% for misc repairs.

MARKET INFORMATION INVESTIGATION [redacted] total claims for 07M Element ([redacted] claim rate). 07M is showing a [redacted] 3 month growth rate. 07M is 3x worse than 03M after the same point in time. 07M Element introduced VSA. 07M Element claim info: Avg DTF = [redacted] days. Avg MTF = [redacted]. Ttl cost = [redacted]. PDI% = [redacted]

MARKET QUALITY CAUSE ANALYSIS Parts analysis - The parts removed in the market did not fix the customer contention until the modulator was replaced . In more than 93% of the warranty claim cases, the vehicle did not return after the repair of the modulator. All parts returned to the supplier have been initially judged as NTF for any sort of 'hard' failure. This part(SCV) is similar to the one used at the Honda plant in Alabama that is experiencing a high failure rate for soft brakes as well. Trends show a common failure mode, a common supplier, but on 2 different vehicles built at 2 different plants. The data points towards the component part being the root cause.
Judgement - This is a supplier design issue.

VIEW BEFORE COUNTERMEASURE

[redacted]

VIEW AFTER COUNTERMEASURE

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RESPONSIBLE DEPARTMENT CAUSE ANALYSIS

The cause is directly related to the residual pressure left in the TCS/VSA circuit after an ABS operation. When the control unit software opened the suction valve, after an ABS event, it improved this condition by relieving that built up pressure.

COUNTERMEASURE CONTENTS

Apply software that opens the suction valve after an ABS operation thereby relieving the pressure/vacuum within the TCS/ABS circuit.

COUNTERMEASURE BY
08/04/09

COUNTERMEASURE CONTROL #
SCWA-071126-01

SOLD PRODUCT TREATMENT

AH:
NORMAL WARRANTY

CH:
NORMAL WARRANTY

JH:
NORMAL WARRANTY

EH:
NORMAL WARRANTY

OTHERS:
NORMAL WARRANTY

STOCKED PRODUCT TREATMENT
REPAIR

PART STOCK CHANGE
PARTS CENTER STOCK

AFTER SERVICE PART NUMBER

SERVICE BULLETIN NUMBER

DESIGN CHANGE NUMBER
[redacted]

COUNTERMEASURE APPLICATION INFORMATION

C/M TYPE	VEHICLE IDENTIFICATION NUMBER	C/M APPLICATION DATE	ENGINE NUMBER	TRANSMISSION NUMBER	NOTES
HARD	5J6YH28338L[redacted]	08/07/30	K24A8-3636600	BZNA1106496	new software
HARD	5J6YH18718L[redacted]	08/07/28	K24A8-3636518	BZKA1105295	new software
HARD	5J6YH18778L[redacted]	08/07/28	K24A8-3636546	BZKA1105268	new software
HARD	5J6YH187X8L[redacted]	08/07/28	K24A8-3636521	BZKA1105297	new software
HARD	5J6YH28738L[redacted]	08/07/28	K24A8-3636461	BZNA1106424	new software
HARD	5J6YH28798L[redacted]	08/07/28	K24A8-3636487	BZNA1106470	New software

RECOMMENDED FIELD ACTION
Confirm condition and replace per service manual direction

COUNTERMEASURE EFFECTIVENESS
Based on the effectiveness on other models, the prediction for this change should result in a [redacted] reduction in warranty

RECOGNITION SIGNATURES

CHIEF ENGINEER	MQ MANAGER	MQ STAFF ENGINEER		RESPONSIBLE DEPT. MANAGER
		REPLY	ISSUE	

PE09-024
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EVENT FLOW

RESPONSIBLE DEPARTMENT AND PERSON

COMPLETION DATE

RECEPTION
H Yonrin Hinshitu Ka [redacted]
2005/01/18

INFORMATION INVESTIGATION
H Yonrin Hinkai Godo [redacted]
2005/01/25

INVESTIGATION AND ANALYSIS
H Yonrin Hinkai Godo [redacted]
2005/02/02

COUNTERMEASURE REQUEST
H Yonrin Hinkai Godo [redacted]
2005/02/02

INTERMEDIATE REPLY

COUNTERMEASURE REPLY
AQ'D AQAO [redacted]
2005/11/21

COUNTERMEASURE ISSUED

COUNTERMEASURE APPLICATION
Q 4Rin Hinkai Godo [redacted]
2005/06/20

COMPLETED
Q 4Rin Hinkai Godo [redacted]
2005/12/06

RECEPTION DATE
/

COUNTERMEASURE REQUEST

ADDRESSEE		RECEPTION			
	AQ'D AQAO		/		
			/		

RANK
C

DATE:		
APPROVAL	CHECK	CREATOR

MODEL CODE YM/MODEL NAME	TITLE	QIS CONTROL #
CN3	ABS, TCS, BRAKE INDICATORS ON	MV20050125075609
05/ACCORD-		
OCCURRENCE DESCRIPTION		

ABS, TCS, BRAKE INDICATORS ON

REPLY

REPLY TO H Yonrin Hinkai Godo VIA BY Feb 16

INVESTIGATION AND ANALYSIS RESULTS

Results of Cooperative Analysis with Nisshin Kogyo
**No external marks or deformation of terminals such as would lead to the problem claimed.
*Results of manual checker
*conditions are: Checker power ON, VSA/ACT lamp ON, VSA SW ON.
*DTC 68-12 (Can bus OFF error) was recorded 81 times.
*Records are counted based on repetition of checker power ON/OFF
**Examination upon opening unit.
*No dropping off or melting of the mounting parts.
*The resistance value between the CAN_L Terminal - CAN driver IC was [redacted], which is high, as compared with a value of [redacted] on sample parts.
***We could not confirm ABS or brake warning light ON, however, since there was an internal abnormality confirmed, we request detailed analysis to be performed by the supplier.

Results of Nisshin Kogyo confirmation
**Witness marks found on terminal indicating proper connection, no bending or deformation confirmed.
**Results of examination with a manual checker
*F/S Code: 86-12 (CAN Transmitter abnormality Bus Off Error) Count 51 H (81times) times.
*At IG-ON The VSA lamp and ACT lamp come on.
*Due to the CAN abnormality, the VSA (TCS) is in a control prohibit condition, but ABS function is possible and without abnormality.
**Results of opening unit and examining it: there are no abnormalities with the component mounting or the circuit board pattern.

Examination results from the circuit board supplier
**Frequency check results: confirmed an abnormality with the signal between the CAN H and the CAN L when TXD signal is Hi.
**CAN driver (IC4) cross check results: confirmed symptom recreation on CAN driver IC.

IC Supplier [redacted] bench test analysis results
*Confirmed that 5-pin was shorted out
*NG ruling from the auto diagnostic equipment as well
*Opened the package and results of examination under a microscope show that there are fine scratches on the wiring of affected circuit board (approx. 10um).
*The scratches have penetrated through from above the protective layer to the upper layer of the metal wiring, and we suspect that they occurred during the assembly process.
*Results of process examination: verified scratches from where equipment came into direct contact with the wafer, however, both the size and configuration differed from that of the market return parts, so this did not lead to clarification of the cause.

CAUSE ANALYSIS

From the location of occurrence of scratches on the market return parts, we suspect the production process, however, the scratches which occur during the production differ in configuration and size, therefore this did not lead to clarification of the cause.

COUNTERMEASURE

Although we were unable to clearly determine the cause, from the location of the scratches it can be surmised that the cause lies within the production process, therefore, we are implementing courtermeasures to prevent outflow.

Before the final test, hot_O/S_test has been added (temperature requirement: 110C) starting 2005.03.07.
HM delivery date: 2005.06.15

TREATMENT FOR STOCK & SOLD UNITS & PARTS

[redacted]

COUNTERMEASURE APPLICATION INFORMATION

DATE	MODEL CODE (MODEL NAME)	YM	DEST.	CATEGORY	PRODUCT #
2005/06/23	CN3	2005	CH	F	C800723
2005/06/23	CN3	2005	AH	F	C014639

COUNTERMEASURE EFFECTIVENESS

Since the C/M approx. 40,000,000 units have been produced (for other companies) and there has been no failure occurrence, so we determine the C/M to be effective.

FEED BACK TO THE SOURCE

C/M content has beer reflected to standards.

QUALITY IMPROVEMENT SHEET
[Q I S]

ISSUED BY
H Yonrin Hinkai Godo

OCCURRENCE MARKET			
REPORT #	A5C028-00		
FRAME #	JHMCN36415C000376		
ENGINE #	JNA1-1000425		
TRANSMISSION #			
TRANSMISSION CATEGORY			
MILEAGE OR HOURS	1050	Mile	
REGISTRATION DATE	2004/12/10		
OCCURRENCE DATE	2005/01/07		
PRODUCT DATE			

SERVICE PART #				
MAIN CAUSAL PART #	57110-SDR-A21			
CAUSAL PART SYMPTOM CODE AND DESCRIPTION				
MODEL CODE				
CAUSE CATEGORY	Outside of manufact			
RESP. DEPARTMENT				
RESP. SUPPLIER	NISSIN KOUGYO KK	CODE	5204	
COUNTERMEASURE CATEGORY	Closed			
COUNTERMEASURE PART SYMPTOM CODE AND DESCRIPTION	1401	addition of		
OCCURRENCE FORECAST	Free-of Secondary			
COUNTERMEASURE PART AVAILABILITY		No		
REVISED ITEM	DRAWING	OPERATION STANDARD		

DATE	REPLY DEPARTMENT (IN-HOUSE)	APPROVAL	CHECK	CREATOR
11/21	AQ'D AQAO			[redacted]

DATE	REPLY DEPARTMENT (IN-HOUSE)	APPROVAL	CHECK	CREATOR

DATE	REPLY DEPARTMENT (OUTSIDE)	APPROVAL	CHECK	CREATOR

ISSUE	DATE	VERSION	APPROVAL	CHECK	CHECK	CREATOR
2	2006/03/21	REVISE	[redacted]			
1	2005/12/06	FINISH				
0	2005/01/25	NEW				

Theme	ABS warning lamp comes ON
Parts No.	57110-SDR-A21
Parts Name	TCS modulator

Analysis Record [Analysis Report]

Prepared by

2nd November, 2005

Nissin Kogyo Co., Ltd.
Quality Assurance Depat.

HONDA [redacted]

Approved by	Checked by	Approved by	Checked by	Prepared by
[redacted]				[redacted]

Occurrence situation (Symptoms, contention, number of cases, details of action)

-Model: SDRA0
-Occurrence date: 7th January, 2005
-Occurrence area: U.S.A. market
-Frame #: JHMCN36415C000376
Mileage: 1050 miles
-No. of cases: 1 case
-Date of registration: 10th December, 2004
-Claimed contents: No info
-Confirmation result from Nissin Kogyo Co., Ltd.: F/S #86-12
(Abnormal CAN communication, bus OFF error)
Count 51 (H)
-PWB assy Drawing #: 009-V75-209B
-PWB assy serial #: NB000390 4X1-2
-PWB assy lot: 19th October, 2004
-Part received date: 8th February, 2005

Understanding facts (Parts checking results, factor analysis, quality level of product)

1. Market return part confirmation result

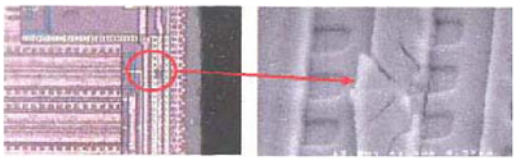
1) PWB assy

Item	Aanalysis content	Analysis results	Judgment
Manual checker analysis	Operation confirmation by manual checker	Warning light comes ON when ignition is turned ON	Defective symptom is recreated.
	Waveform confirmation by oscilloscope	Confirmed an abnormality with the CANH and the CANL when TXD signal is Hi	
Outer appearance confirmation of board	Microscope confirmation of soldering and part condition	Soldering condition is NTF. Part condition is NTF.	Outer appearance of board is NTF.
Manual checker analysis	Cross check of CAN driver IC (IC4)	Symptom was recreated on CAN driver IC side of the failed part.	CAN driver IC is abnormal.

-From market return part analysis results, IC4 (CAN driver IC) is determined to have abnormality.
Further parts analysis will be carried out at the parts supplier [redacted]

2) Unit part analysis
Part #: PCA82C250T/N4
Supplier: [redacted]
Lot #: n4264
1)) Outer appearance inspection: NTF
2)) X-ray inspection: NTF
3)) Electrical characteristics test
Curve tracer (at normal temperature): Confirmed that 5-pin (Vref) was shorted out.
Automatic inspection apparatus (ATE): Judged as failure.

4)) Internal confirmation by opening package
Confirmation with microscope confirmed minute damage (scratch) in metal wiring in 5-pin (Vref) circuit. (Size of scratch: Approx. 10um)



From the above analysis results this failure is determined to be lead by electrical short circuit from minute crack on the failed part. The scratches have penetrated through from above the protective layer to the metal wiring layer, and we suspect that they occurred during the assembly process.

5)) Process examination (Verification of equipment which came into direct contact with the wafer)
Wafer test: Test probe diameter: 25um
Wafer sawing: Width of dicing saw: 30um
Bonding: Capillary diameter: 25um
Die attachment: Dimension of collet: 1.7 x 2.7mm
All the equipments, which come into direct contact with the wafer, are larger then confirmed scratch so it is unlikely that they caused the damage.

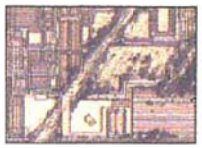
Investigation for problem cause (Occurrence mechanism, duplication test, Why-because analysis)

Investigation results
Size of scratch confirmed by internal analysis is approx. 10um and investigation of equipments (area where it comes into direct contact with the wafer) which are used in assembly process after formation of protective film, revealed that all of them were larger than the scratch on the market return part.

Scratch recreation test was carried out with equipments, and found that both the size and configuration differed from that of the market return parts (See photos on right.)

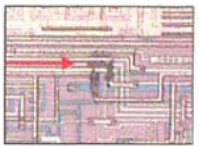
From analysis of market return parts we can confirm what is reported in this report only, and cause could not be specified.

Outflow cause
If the failure had been exposed, it could have been detected in shipping inspection at [redacted] and [redacted] It is considered that minute defect on wafer led to functional failure by change with the passage of time and failure occurred in market.



Scratch from wafer test

Scratch from wafer sawing



Scratch from die attachment

Market return failed part

Appropriate C/M (C/M content, predict effect, PPA)

Outflow countermeasure
Before the final test hot_O/S_test has been added (temperature requirement: [redacted] starting 7th March, 2005
(HM delivery date of countermeasure part: Since 15th June, 2005)

Confirm C/M's effectiveness (Effect result)

Effect of countermeasure
-After application of outflow countermeasure, approx. 40,000,000 units have been manufactured and similar failure to this failure hasn't occurred. [redacted]

View on high occurrence
-No change points and abnormal points in manufacturing history.
-No similar failure occurrence with market return parts in the past (Shipped number to market is approx. 900,000 units.)
From analysis result of market return part, the cause could not be specified but from the abvoe it is an accidental occurrence and high occurrence is determined not to occur.

Feed back to original source (Reflection content to system and structure)

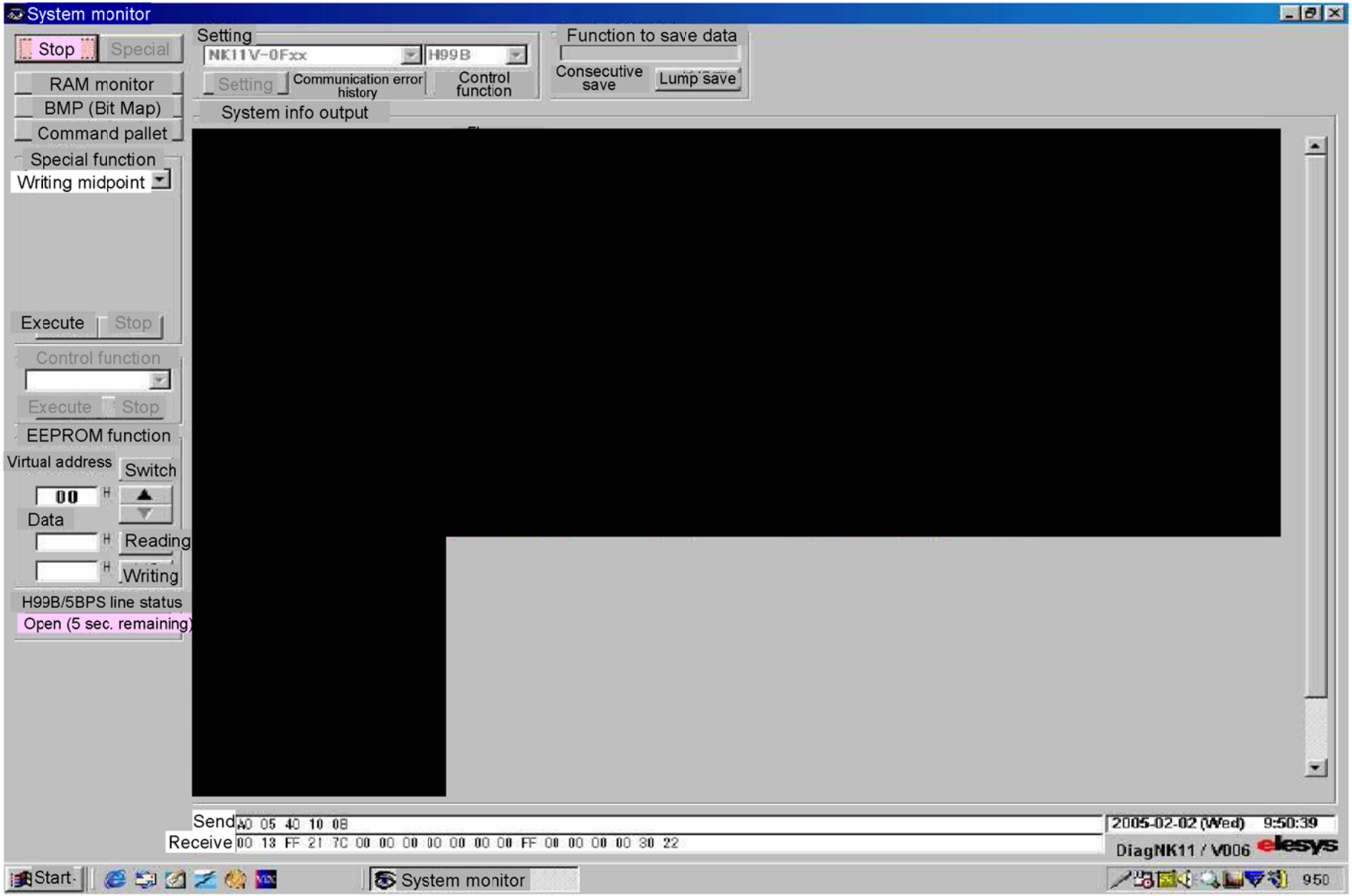
Countermeasure contents are reflected to standards.

Why Why analysis

STEP		1	2	3	4	5
Content	Occurrence	Detection of F/S #86-12 (Abnormal CAN communication)	Communication signal output of CAN IC was abnormal.	Vref circuit of CAN IC was shorted out.	Minute scratches were found in chip.	Cause of scratch could not be specified.
	Outflow	Failure occurrence in market	Functional inspection at the time of product delivery was judged	Failure of CAN IC has not been	Defect in chip was very minute	

Manual checker confirmation

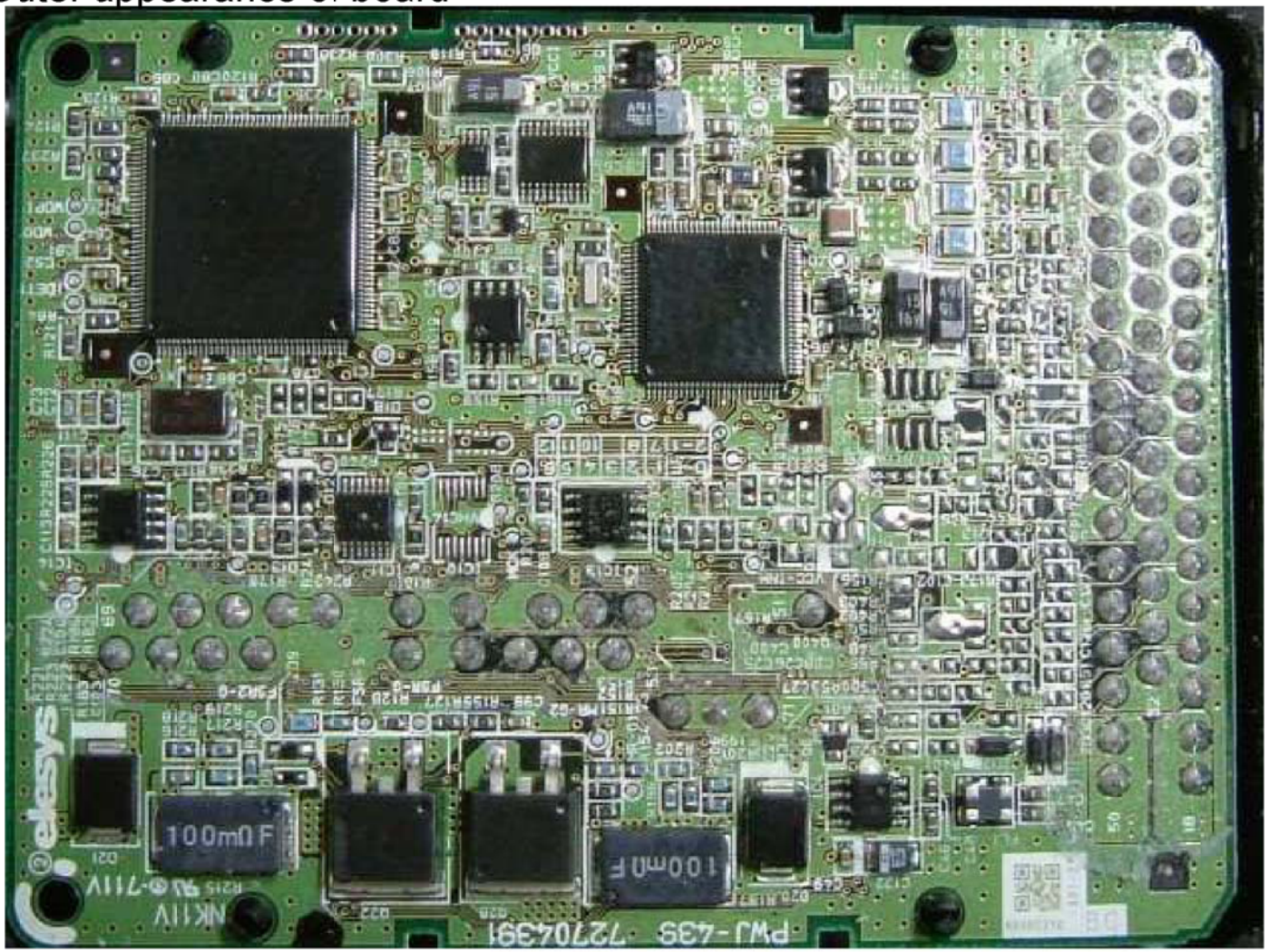
Separate sheet 1



Confirmation by opening ECU cover

Separate sheet 2

<Outer appearance of board>



Board's outer appearance confirmation result

- Board's outer appearance has no abnormality such as contaminant adhesion, disconnection of pattern.
-Soldering condition of terminals has no abnormality.

CAN communication waveform confirmation

Separate sheet 3

Waveform of normal part	Waveform of market return part
[redacted]	

Result

-Waveform of market return part has an abnormality with the CANH and the CANL waveform when TXD signal is Hi.

イベント
担当部門氏名
完了年月日
↓
受付
H四輪品質改革
[redacted]
2005/01/18
↓
情報調査
H四輪品改合同
[redacted]
2005/01/25
↓
調査解析
H四輪品改合同
[redacted]
2005/02/02
↓
対策要求
H四輪品改合同
[redacted]
2005/02/02
↓
中間回答
↓
対策回答
四輪品質改革部
古手川　有二
2005/11/21
↓
出図
↓
対策実施
Q四輪品改合同
[redacted]
2005/06/20
↓
完了
Q四輪品改合同
[redacted]
2005/12/06

受付月日
／

対策要求

宛先					
四輪品質改革部 殿	経由	受付	／		
	経由 殿	受付	／		

重要度
C

年　月　日		
承認	確認	作成

型式/YM・通称名	件　名	推　進　No.
CN3	ＡＢＳ／ＴＣＳ／ブレーキ警告灯点灯	MV20050125075609
05/ACCORD-		
発生状況		

ＡＢＳ／ＴＣＳ／ブレーキ警告灯が点灯。

回　答

2月16日　までに　　経由　H四輪品改合同　　宛に回答願います。

調査・解析結果

日信工業合同確認結果
■外観に訴えに至るような外傷・端子変形は無い。
■マニュアルチェッカー確認結果
・チェッカー電源オンで、ＶＳＡ・ＡＣＴランプ点灯、ＶＳＡ　ＳＷがオン状態である。
・ＤＴＣ６８−１２（ＣＡＮバスオフエラー）が８１回記録。
・チェッカー電源オン・オフ繰り返しで、記録回数がカウントＵＰされる。
■開封確認結果
・実装部品に脱落、焼損は無い。
・ＣＡＮ　Ｌ端子〜ＣＡＮドライバーＩＣ間抵抗値が、サンプル品[redacted]に対し、返却品は[redacted]と高い。
※訴えのＡＢＳ，ブレーキ警告灯点灯は確認されなかったが内部異常は確認された為、詳細な解析を取引先に依頼する。

日信工業確認結果
■カプラ端子の当たり痕はついており、曲がり等の変形もない。
■マニュアルチェッカー確認結果
・Ｆ／Ｓコード：８６−１２（ＣＡＮ通信異常バスオフエラー）　カウント５１Ｈ（８１回）回
・ＩＧ−ＯＮにてＶＳＡランプおよびＡＣＴランプ点灯。
・ＣＡＮ異常によりＶＳＡ（ＴＣＳ）は制御禁止状態であるが、ＡＢＳ動作は可能で異常ない。
■開封確認結果、基板パターン、実装部品の取り付け状態に異常ない。

基板メーカー確認結果
■波形確認結果、TXD信号Hi時に、ＣＡＮ　ＨとＣＡＮ　Ｌの信号に異常を確認。
■ＣＡＮドライバー（ＩＣ４）クロスチェックで、ＣＡＮドライバーＩＣの症状再現を確認。

ＩＣメーカー[redacted]単品解析結果
■５ｐｉｎがショート状態を確認
■自動検査機でもＮＧ判定
■パッケージ開封し、マクロスコープ確認結果、該当回路配線上に微少なスクラッチ(約10μm)を確認。
■スクラッチは、保護膜の上から金属配線上層に亘っており、組立工程で発生したと推定される。
■工程調査結果、ウェハーに直接接触する機材のスクラッチを検証したが、返却現品とは形状、大きさ共異なり、原因の究明には到らなかった。

原因

返却現品のスクラッチ発生場所から製造工程と推定されるが、製造工程で発生するスクラッチと形状、大きさが異なり、原因の究明には到らなかった。

対策

原因の究明には到らなかったが、スクラッチ場所から製造工程不具合と推定される為、流出対策を行う。

Final_testの前にhot_O/S
_testを追加(温度条件:110℃)2005.03.07より実施。
HM納入日:2005.06.15

既販車及び在庫品の処置

[redacted]

対策適用号機					
年月日	型式（通称名）	年式	仕向地	区分	号機
2005/06/20	CN3	2005	CH	F	C800723
2005/06/20	CN3	2005	AH	F	C014639

対策効果確認

対策後約4000万個生産[redacted]しているが、同不具合発生しておらず、効果ありと判断します。

源流へのフィードバック

対策内容を標準類へ反映。

市場品質情報
〔ＱＩＳ〕

発　行　部　門
H四輪品改合同

発　生　場　所			
フレーム No.	JHMCN36415C000376		
エンジン No.	JNA1-1000425		
ミッション No.			
ミッション区分			
走行距離、時間	1050	Mile	
登録　年月日	2004/12/10		
発生　年月日	2005/01/07		

新部品番号			
主部品番号	57110-SDR-A21		
症状コード			
EDP KEY型式名			
原因区分	製造社外		
責任区 部門			
責任区 取引先名	日信工業（株）	コードNo.	5204
対策区分	完了		
対策内容コード	1401	ｴｲｼﾞﾝｸﾞ追加	
発生予測	続発性なし		
対策パーツ		無	
見直し項目	図面	作業標準	

月日	回答部門(所内)	承認	確認	作成
11/21	四輪品質改革部			[redacted]

月日	回答部門(所内)	承認	確認	作成

月日	回答部門(所外)	承認	確認	作成

発行	年月日	記事	承認	確認	確認	作成
2	2006/08/21	改訂発行	[redacted]			
1	2005/12/06	完了発行				
0	2005/01/25	新規				

テーマ	ABS ワーニングランプ点灯
部番	57110−SDR−A21
部品名	TCSﾓｼﾞｭﾚｰﾀ

解析記録〔解析レポート〕

管理No：

作成部門	日信工業株式会社 品質保証部		2005 年 11 月 2 日
	承認	確認	
	[redacted]	[redacted]	
	株式会社[redacted]		
	承認	確認	作成
		[redacted]	

発生状況（現象・訴え内容・発生件数・処置内容）

- ・機種 : SDRA0
- ・発生年月日 : 2005年1月7日
- ・発生場所 : 市場(USA)
- ・ﾌﾚｰﾑNo. : JHMCN36415C000376
- ・走行距離 : 1050mile
- ・発生台数 : 1台
- ・登録年月日 : 2004年12月10日
- ・訴え内容 : 情報なし
- ・日信確認結果 : F/S#86−12(CAN通信異常 ﾊﾞｽｵﾌｴﾗｰ) ｶｳﾝﾄ 51(H)
- ・PWB Assy図番 : 009−V75−209B
- ・PWB Assy ｼﾘｱﾙNo : NB000390 4X1−2
- ・PWB Assyﾛｯﾄ : 2004年10月19日
- ・現品受取日 : 2005年2月8日

事実の把握（部品の確認結果・要因分析・生産品の品質状況）

1．現品の確認結果

(1)PWB Assy

項目	解析内容	解析結果	判定
ﾏﾆｭｱﾙﾁｪｯｶｰ解析	ﾏﾆｭｱﾙﾁｪｯｶｰにて動作を確認	IG-ONにてWL点灯 F/S#86−12検知	不具合事象再現性あり
	ｾﾙﾌｽｷｬﾝﾂｰﾙにて通信確認	TYO雷帯 Hi時のCANH, CANLに異常あり	
基板外観確認	半田状態、部品状態の外観確認(顕微鏡)	半田の状態 … 異常なし 部品の状態 … 異常なし	基板の外観に異常なし
ﾏﾆｭｱﾙﾁｪｯｶｰ解析	CAN ﾄﾗﾝｼｰﾊﾞｰ(IC4)のIOﾁｪｯｸ	事象品CAN ﾄﾗﾝｼｰﾊﾞｰIC単体で症状再現	CAN ﾄﾗﾝｼｰﾊﾞｰIC異常あり

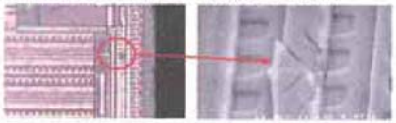
・現品解析結果より、IC4(CAN ﾄﾗﾝｼｰﾊﾞｰIC)に異常があると判断する。
以降、部品ﾒｰｶｰ[redacted]での現品単品解析を行なう。

(2)部品単品解析

品番 : PCA82C250T/N4
ﾒｰｶｰ : [redacted]
D/CNo. : n4264
①外観検査
異常なし
②X線検査
異常なし
③電気的特性試験
ｶｰﾌﾞﾄﾚｰｻｰ(常温) … Spin(Vref)ショート状態を確認
自動検査装置(ATE) … 不良判定

④ﾊﾟｯｹｰｼﾞ開封内部確認

ﾏｲｸﾛｽｺｰﾌﾟにて確認したところ、Spin(Vref)回路の金属配線に微小な損傷(ｽｸﾗｯﾁ)が確認された。(ｽｸﾗｯﾁの大きさ:約10μm)



上記解析結果より、本事象品は微小なｽｸﾗｯﾁにより電気的な短絡が発生し、本不具合に至ったものと判断致します。ｽｸﾗｯﾁは保護膜の上から金属配線層に亘っており、組立工程で発生したものと推測されます。

⑤工程調査(ｳｪﾊｰに直接接触する機材の確認)

ｳｪﾊｰﾃｽﾄ	:	ﾃｽﾄ･ﾌﾟﾛｰﾌﾞ径 … 25μm
ｳｪﾊ裁断(Sawing	:	ﾀﾞｲｼﾝｸﾞ･ｿｰ(刃)幅 … 30μm
ﾎﾞﾝﾃﾞｨﾝｸﾞ	:	ｷｬﾋﾟﾗﾘｰ径 … 25μm
ﾀﾞｲ･ｱﾀｯﾁ	:	ｺﾚｯﾄ寸法 … 1.7×2.7mm

ｳｪﾊｰに直接接触する機材は全て確認されたｽｸﾗｯﾁより大きく、これらが要因となった可能性は極めて低いと推測されます。

原因の究明（発生のメカニズム・再現テスト・ナゼ・ナゼ分析）

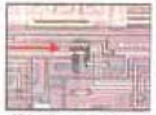
調査結果
内部解析で確認されたｽｸﾗｯﾁの大きさは約10μmあり、保護膜形成後の組立工程で使用されている機材(ｳｪﾊｰに直接接触するところ)を調査した結果、全て現品のｽｸﾗｯﾁより大きいものだった。

各機材でのｽｸﾗｯﾁの再現実験をしたところ、本不具合品のｽｸﾗｯﾁと比較し、形状・大きさとも異なる事を確認した。(右写真参照)

現品解析から確認できる項目は、本報告内容までであり、原因の究明に至りませんでした。


ｳｪﾊ･ﾃｽﾄでのｽｸﾗｯﾁ


ｳｪﾊ裁断でのｽｸﾗｯﾁ


ﾀﾞｲ･ｱﾀｯﾁでのｽｸﾗｯﾁ


本不具合品

流出原因
不具合が顕在化していれば、[redacted]および[redacted]出荷検査で検出できる内容であり、ｳｪﾊ上の微細な欠陥が経時変化により機能不具合に至り、市場にて不具合が発生したと考えます。

ﾅｾﾞ･ﾅｾﾞ分析

ステップ		1	2	3	4	5
内容	発生	F/S#86−12(CAN通信異常)検知	CAN ICの通信信号出力に異常があった	CAN ICのVref回路がショートしていた	チップ内部に微細な傷(スクラッチがあった。	スクラッチの不具合原因については、究明に至らず。
	流出	市場での不具合発生	製品出荷時の性能検査においては、OK判定であった。	CAN ICの不具合が顕在化していなかった	チップ内部の欠陥は非常に微細なものであった。	

適切な対策（対策内容・効果予測・PPA）

流出対策
Final_testの前にhot_C/S_testを追加[redacted]
2005年3月7日より実施
（対策品 HM殿納入日は、6/15より）

対策効果の確認（効果実績）

対策の効果
・流出対策後、約4000万個生産、本不具合と同様の不具合は発生していない。[redacted]

多発性に対する見解
・製造履歴に変化点および異常点がないこと。
・市場返却品で、過去に同等不具合の発生がないこと。(市場出荷数、約90万台)
現品の解析結果からは原因究明には至りませんでしたが、以上のことから、偶発的なものであり、多発性はないものと判断する。

源流へのﾌｨｰﾄﾞﾊﾞｯｸ（体制・仕組みへの反映内容）

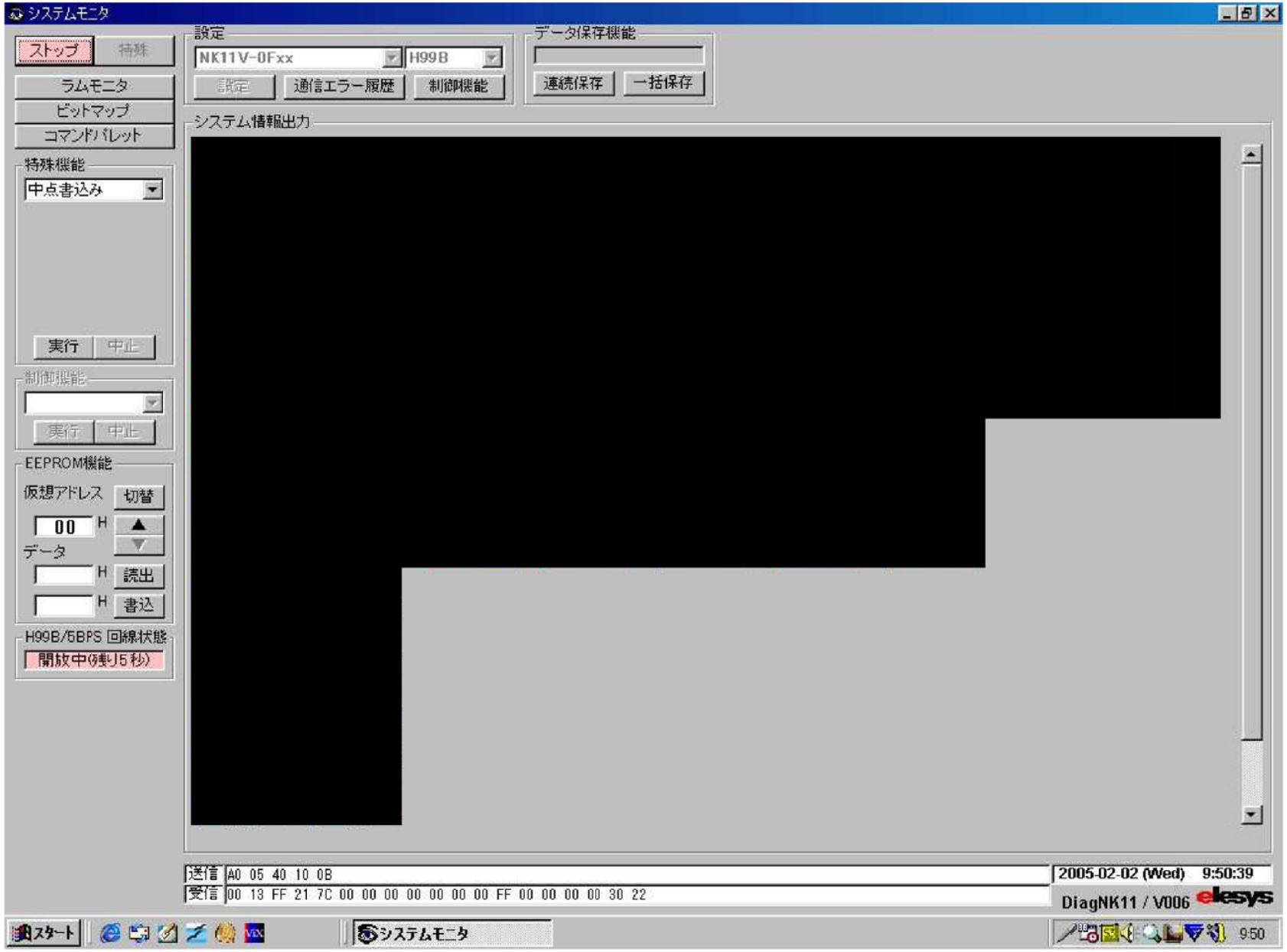
対策内容を標準類へ反映します。

99122

原本保存期限： 年 月

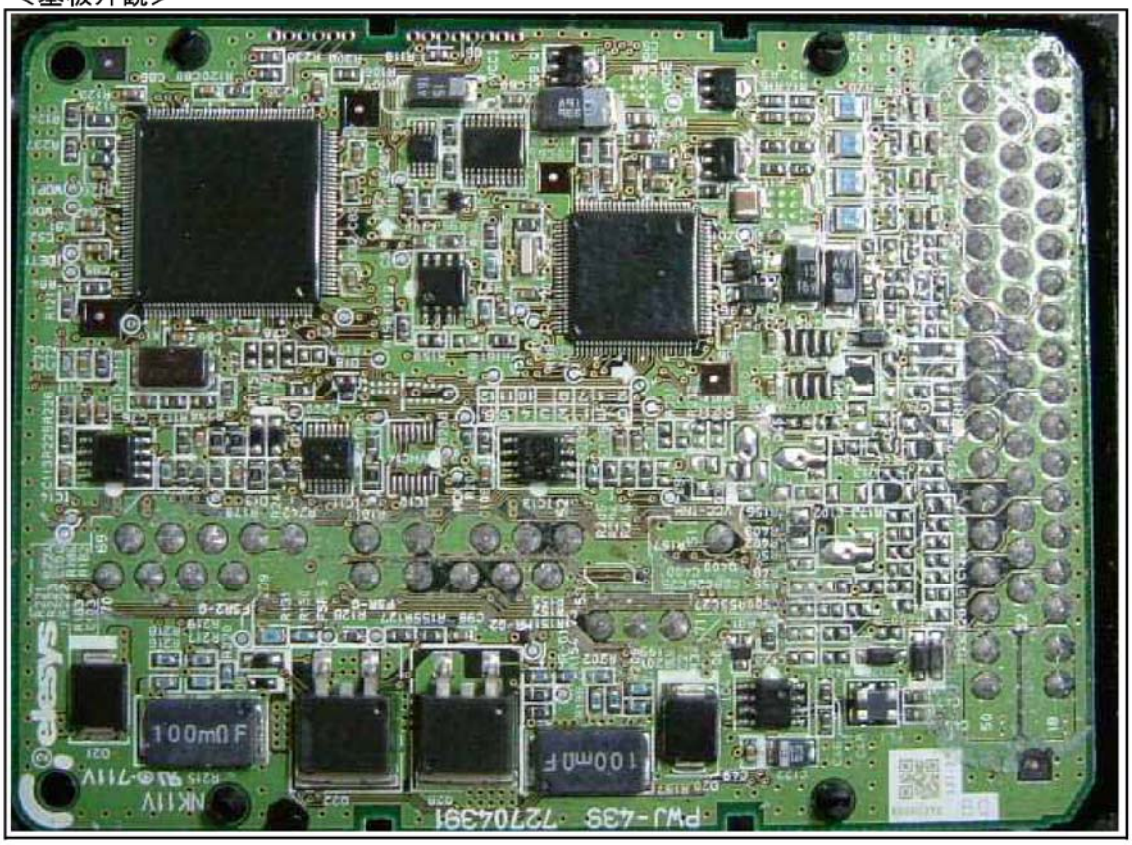
マニュアルチェッカー確認

別紙1



ECUカバー開封確認　　別紙2

＜基板外観＞

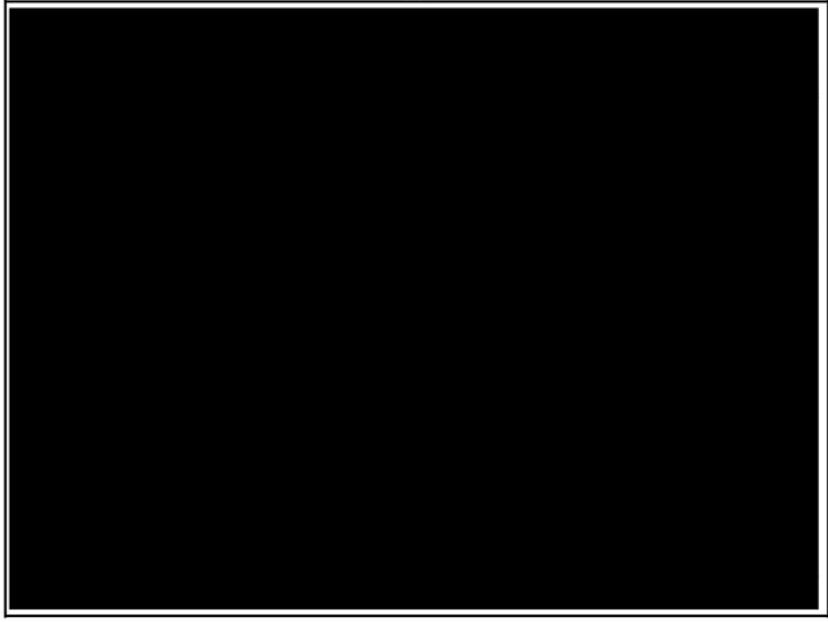


基板外観確認結果

・基板外観に、異物付着やパターン断線等の異常は見られない。
・各端子の半田状態に異常は見られない。

CAN通信　波形確認

別紙3

正常品波形	返却現品波形
	

結果

・返却現品の波形は、TXD信号がHiの時に、CANH・CANLの波形に異常が確認できる。

PE09-024
HONDA
7/24/2009
ATTACHMENT
Q8 DOC 5 ACCORD QIS

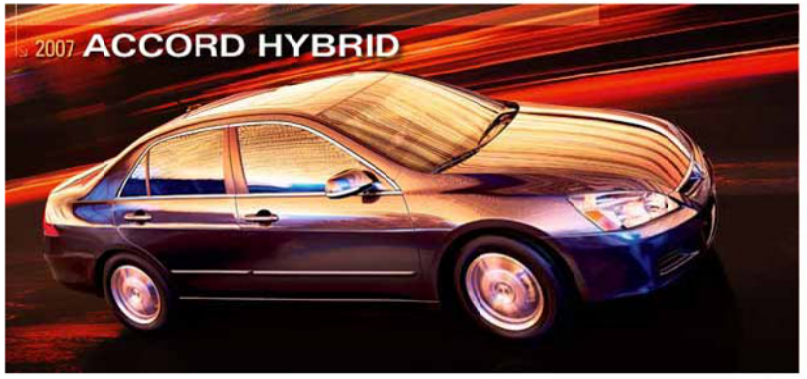
HONDA
The Power of Dreams

QIS No.:

品質技術レポート
06M 07M ACCORD IMA
VSA故障 DTC121－21

[メンバー]

[redacted]



作成日：2007/05/25

発生状況　及び　提案

- 訴え内容、事象　VSAﾜｰﾆﾝｸﾞﾗﾝﾌﾟが点灯する。（＊121-21：ﾚｷﾞｭﾚｰﾀｰﾊﾞﾙﾌﾞ診断）
- 特異点　「VSA、ABS、BRAKE、ACT」点灯
  - 再発ﾕｰｻﾞｰが多い5件（約10%再発）　＊4回発生しﾊﾞｲﾊﾞｯｸ
  - HDSﾃﾞｰﾀ車両情報から、停車状態で警告灯が点灯

[redacted]

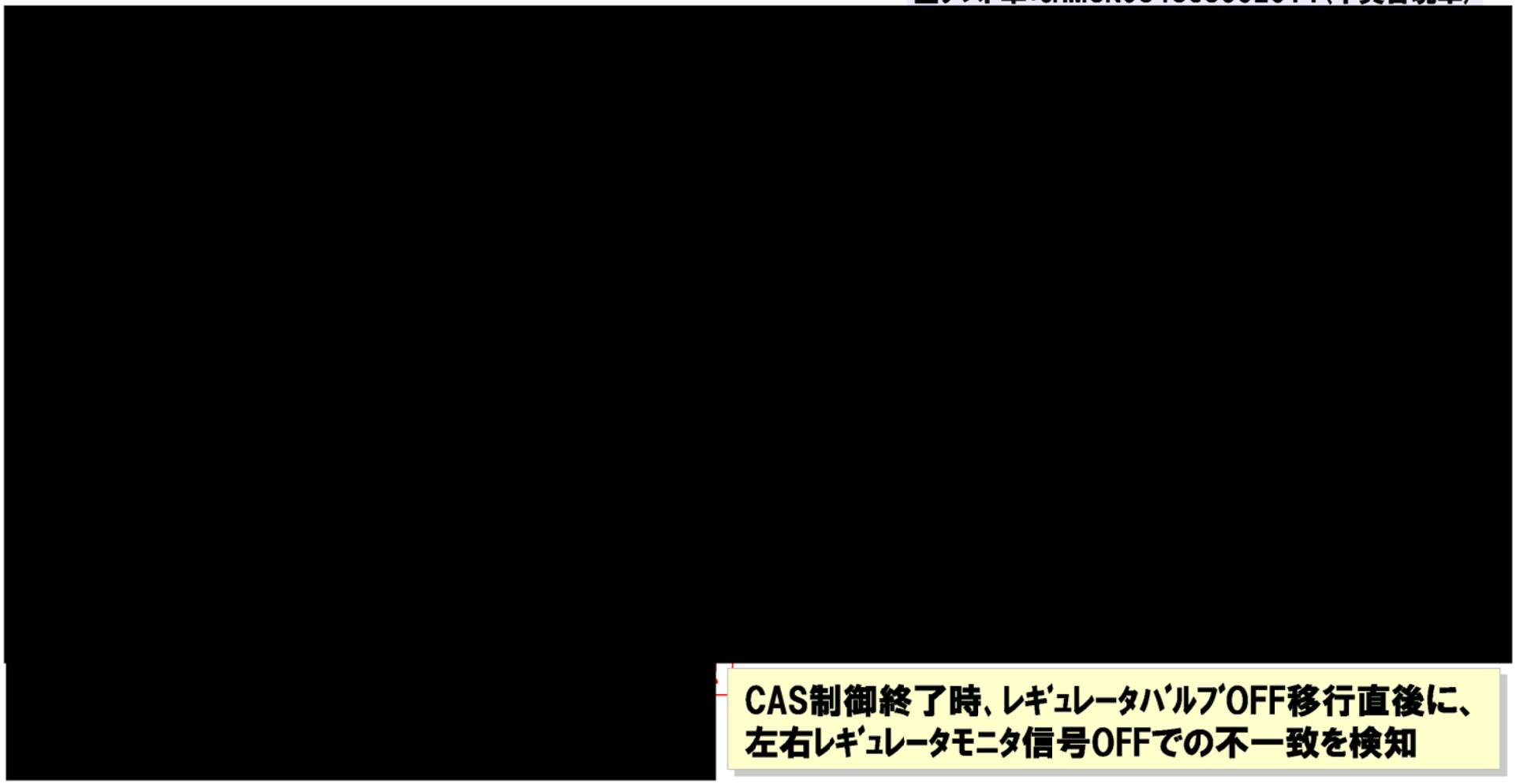
再現結果

3/10

■不具合現車での再現結果

ワーニングは再現しなかったが、ブレーキリリース時のCAS制御ON/OFFに連動して、フェールカウンタの異常カウントUP動作を確認した

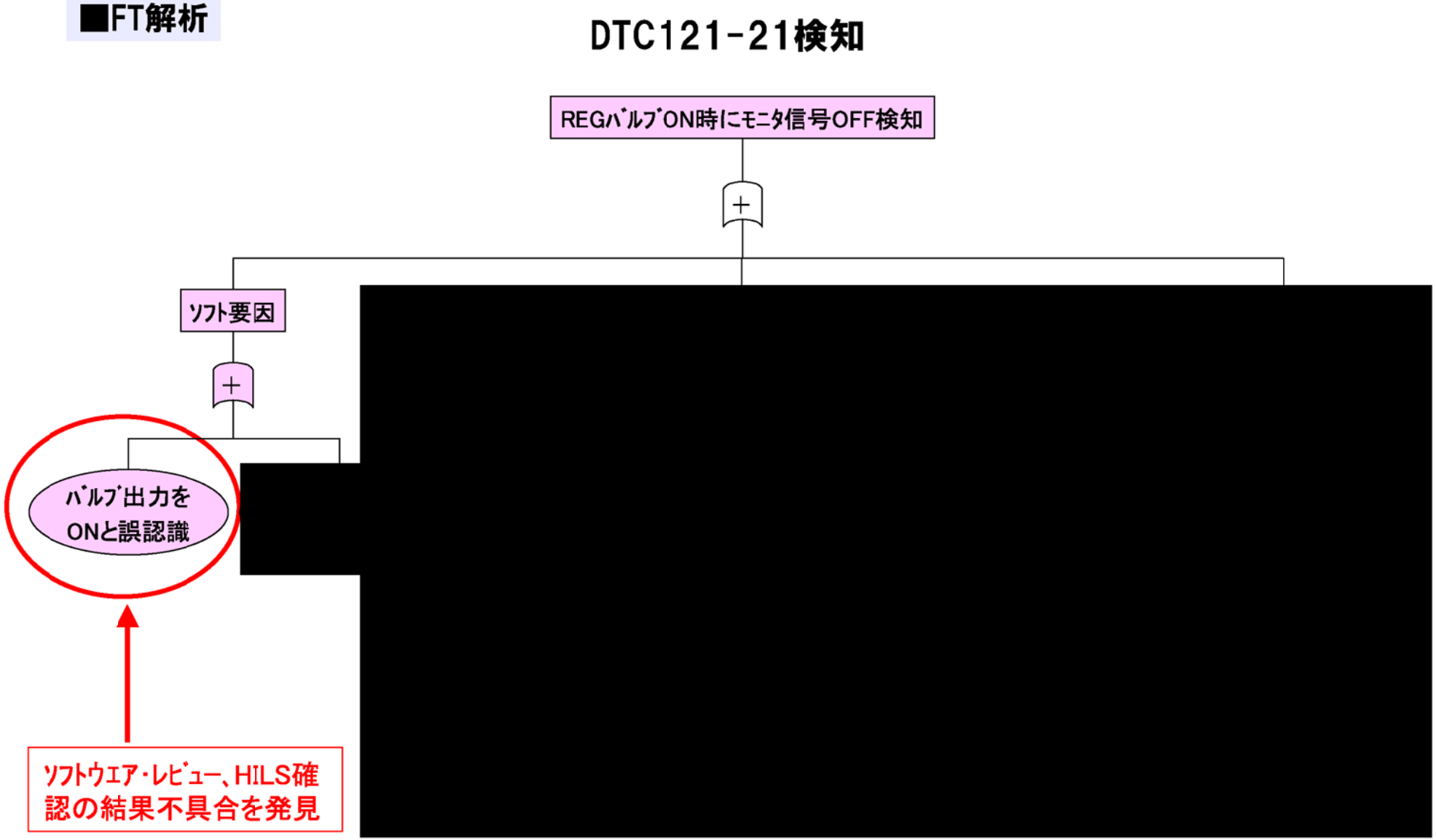
■テスト日：2007.5.10　■テスト地：HRA-LA
■テスト車：JHMCN36466C002514（不具合現車）



CAS制御終了時、ﾚｷﾞｭﾚｰﾀﾊﾞﾙﾌﾞOFF移行直後に、
左右ﾚｷﾞｭﾚｰﾀﾓﾆﾀ信号OFFでの不一致を検知

要因推定

■FT解析


DTC121-21検知
REGﾊﾞﾙﾌﾞON時にﾓﾆﾀ信号OFF検知
ｿﾌﾄ要因
ﾊﾞﾙﾌﾞ出力を
ONと誤認識
ｿﾌﾄｳｪｱ･ﾚﾋﾞｭｰ、HILS確
認の結果不具合を発見

発生メカニズム

5/10

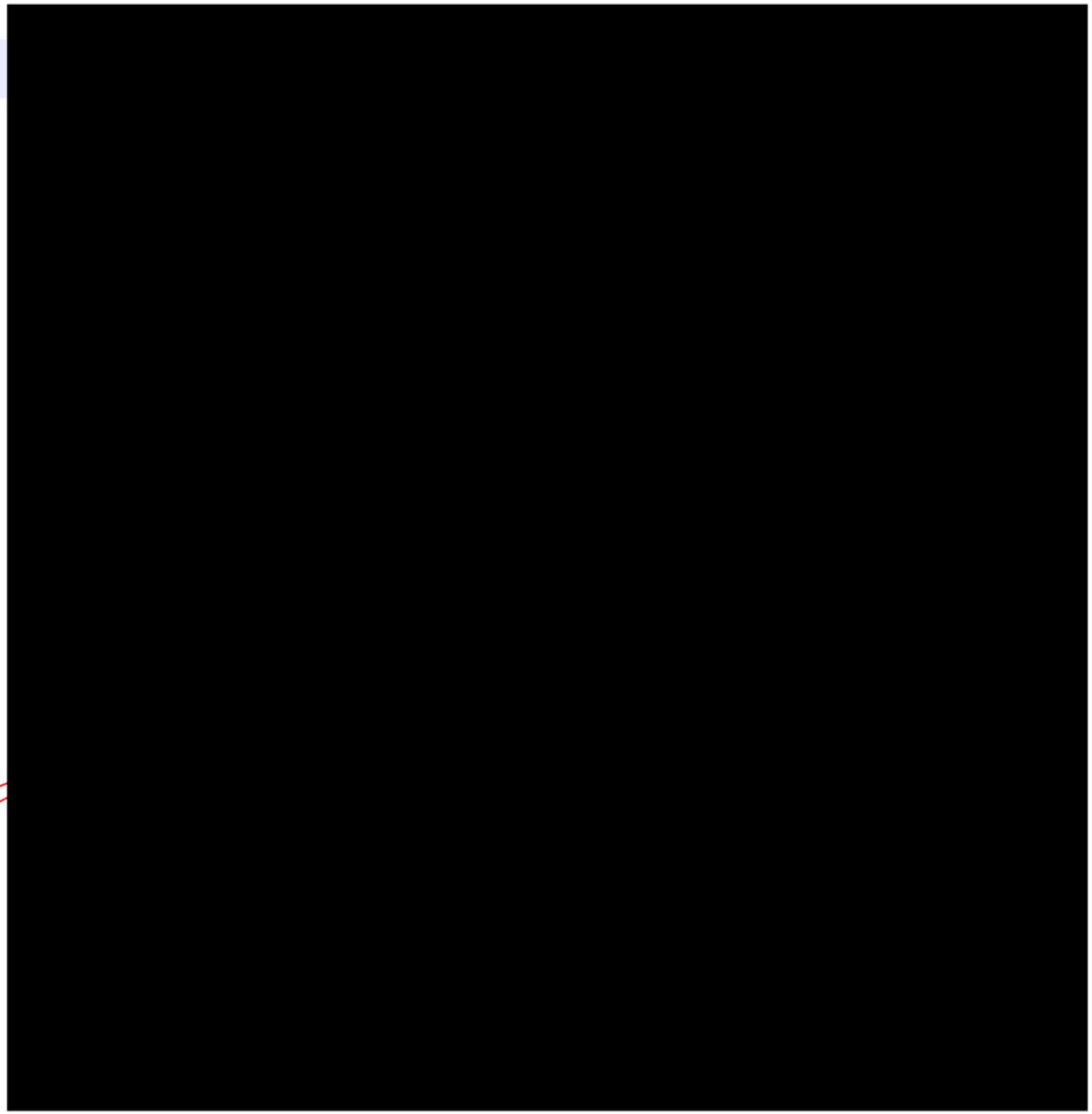
■非制御中の正常な診断動作

診断用ﾃｽﾄ信号出力処理

制御用信号出力処理

ﾃｽﾄ出力－ﾓﾆﾀ信号比較処理

出力したﾊﾞﾙﾌﾞ信号に同期したモニタ信号を取得するので、論理不一致は発生しない



発生メカニズム

■制御終了時の診断動作

診断用テスト信号出力処理

↓

制御終了したループでは出力せず、
バルブ出力バッファは前回値のまま

制御用信号出力処理

↓

バルブモニタは最新値に更新

テスト出力－モニタ信号比較処理

前回の制御用信号と、制御終了直前のバルブモニタ信号とを比較

↓

PWM制御終了時は、バルブ出力ON
バルブモニタOFFとなり、論理不一致

[redacted]

発生予測

■発生予測台数

現在のワランティ発生（13件）からワイブル分析を用いて発生台数を予測

➡ 10年間で284台（残り271台）

対策まとめ

■対策仕様

[redacted]

■効果確認結果

HILSにてCAS繰り返し作動を再現。
ﾊﾞﾙﾌﾞ出力とﾊﾞﾙﾌﾞﾓﾆﾀの不一致発生なし。

効果確認	論理不一致	最大ﾌｪｰﾙｶｳﾝﾄ
対策前 CAS135回	138回	3ｶｳﾝﾄ
対策後 CAS135回	0回	0ｶｳﾝﾄ

診断用ﾊﾞﾙﾌﾞ出力時のみﾊﾞﾙﾌﾞﾓﾆﾀとの比較を行うため、必ず論理一致

対策まとめ

9/10

■対策内容　VSAソフトウエア変更

■対象範囲　06M・07M ACCORD IMA [redacted]

[redacted]

再発防止

10/10

以上

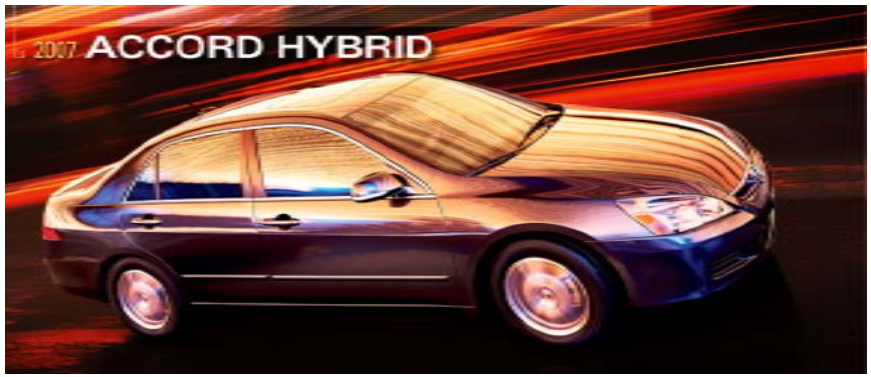
HONDA
The Power of Dreams

QIS No.:

Quality Engineering Report
2006/2007YM ACCORD IMA
VSA failure DTC121-21

[Members]

[redacted]



Prepared on: 25th May, 2007

Occurrence Situation and Proposal

-Contention, symptom: VSA warning lamp comes ON (*121-21: Regulator valve diagnosis)
"VSA, ABS, brake, ACT" comes ON

-Particularities
-A lot of recurrences: 5 cases (Recurrence accounts for approx. 10%.)
*It occurred four times resulting in buy-back.

-From HDS data vehicle info, warning light comes on when vehicle is at a stop.

[redacted]

Result of Recreation

■Result of recreation on market return failed car

Although warning lamp coming ON was not recreated, we confirmed abnormal counting of failures in conjunction with CAS control ON/OFF at the time of brake release.

■Test date: 10th May, 2007, ■Test location: HRA-LA
■Test car: JHMCN36466C002514 (failed car)

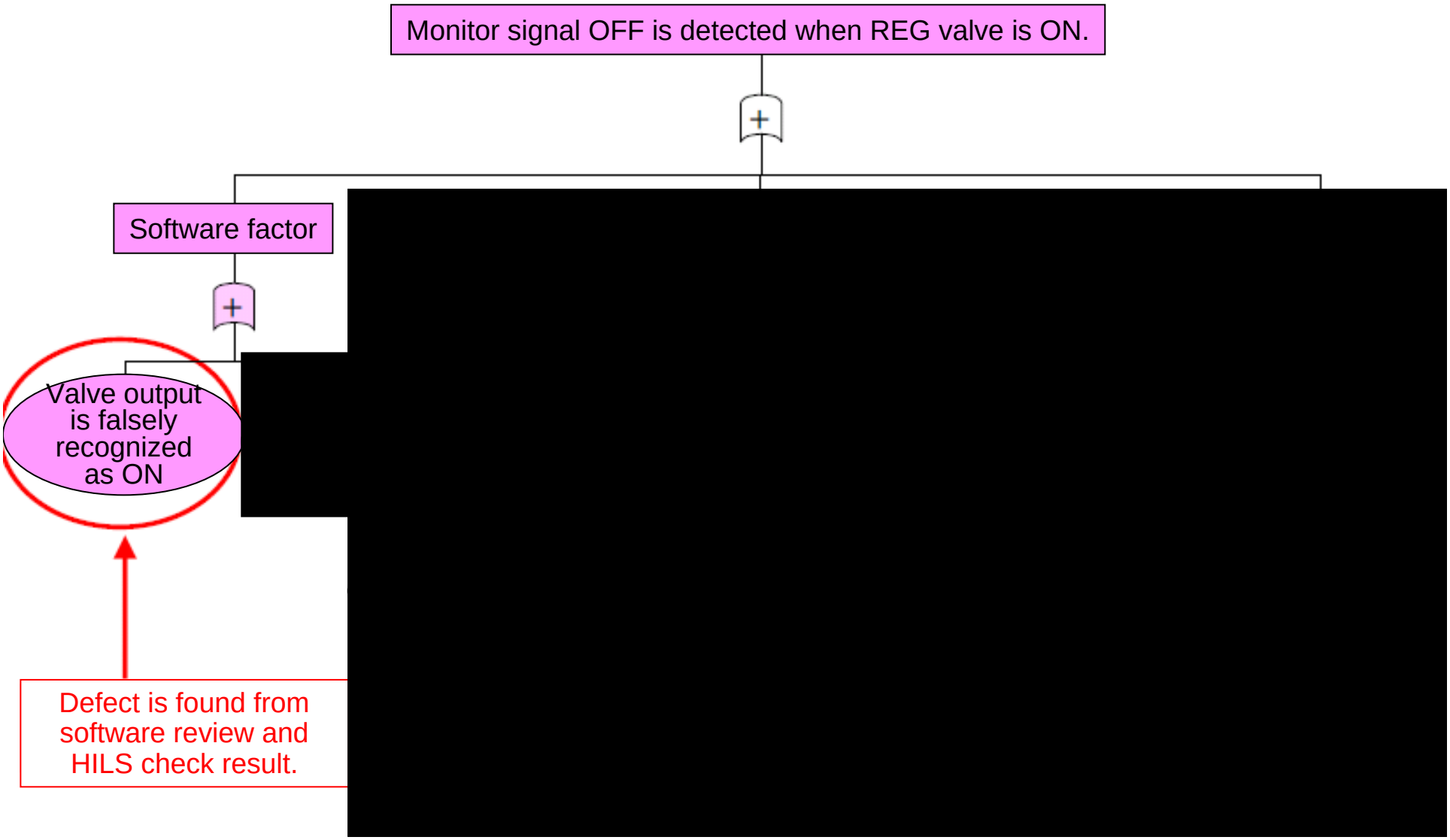
[redacted]

Detected mismatch with L/R regulator monitor signal OFF right after regulator valve shifting to OFF at CAS control completion.

Estimating Factors

■FT analysis

DTC121-21 detection



Occurrence Mechanism

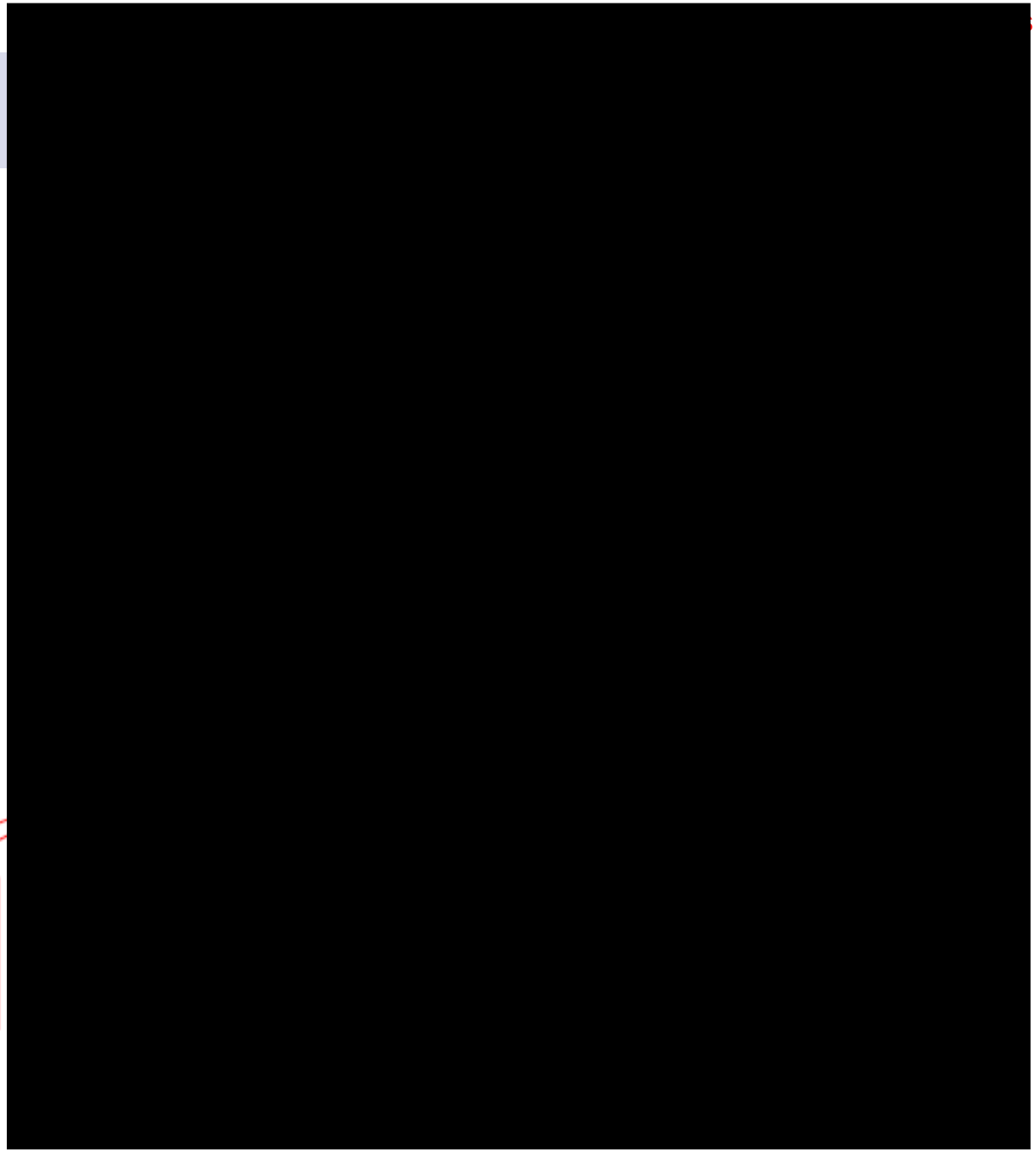
■Noncontrolled normal diagnosis operation

Output processing of test signal for diagnosis

Output processing of signal for control

Comparison processing between test output and monitor signal

Logic mismatch does not occur because it obtains monitor signal which is synchronized with output valve signal.



Occurrence Mechanism

■Diagnosis operation at the time of control completion

Output processing of test signal for diagnosis

↓

No output in the control completed loop, and valve output buffer remains at the previous value.

Output processing of signal for control

↓

Updates latest valve monitor value

Comparison processing between test output and monitor signal

Compare the previous control signal and valve monitor signal right before completion of control.

↓

At the end of PWM control, valve output is ON and valve monitor is OFF; logic mismatch

[redacted]

Occurrence Prediction

■Number of occurrence prediction

From current warranty occurrences (13 cases), number of occurrences were predicted using Weibull analysis.

➡ **284 units in 10 years (remaining 271 units)**

Summary of Countermeasure

■Countermeasure spec

[redacted]

■Countermeasure effect confirmation

Recreated repeated CAS operations in HILS. No mismatch between valve output and valve monitor.

Effect confirmation	# of logic mismatches	Max. fail count
135 CAS before countermeasure	138回	3カウント
135 CAS after countermeasure	0回	0カウント

Comparison is carried out only at diagnosis valve output, so logic agrees without fail.

Summary of Countermeasure

9/10

■Countermeasure content

VSA software change

■Affected range

2006 / 2007YM ACCORD IMA [redacted]

■Market action

[redacted]

■Countermeasure schedule

[redacted]

Recurrence Prevention

10/10

■Why-why analysis

■Recurrence preventive measures

END

PAGE CONTAINS CONFIDENTIAL INFORMATION

イベント
担当部門氏名
完了年月日

受付
Q四輪品改合同
[redacted]
2007/06/07

情報調査
Q四輪品改合同
[redacted]
2007/06/07

調査解析
Q四輪品改合同
[redacted]
2007/06/20

対策要求
Q四輪品改合同
[redacted]
2007/06/06

中間回答

対策回答
四輪品改合同
[redacted]
2007/07/05

出図
2007/06/29

対策実施

完了
Q四輪品改合同
[redacted]
2007/07/09

受付月日
／

対策要求

宛先						
四輪品改合同	経由 殿	受付	／			
	経由 殿	受付	／			

重要度
C

年 月 日		
承認	確認	作成

型式/YM・通称名	件名	推進 No.
CN3	VSAモジュレーター DTC 121-21(TCS ソレノイド)点灯 <QAH2155>	MV20070607164145
06/ACCORD/		
発生状況		

ﾀﾞｯｼｭﾎﾞｰﾄﾞのABS, VSA及びVSA作動ｲﾝｼﾞｹｰﾀｰ全てが点灯

回答　6月20日　までに　経由　Q四輪品改合同　宛に回答願います。

調査・解析結果

【調査結果】
・打上事象確認：06,07M アコードIMA車にてDTC121-21(REG/Vﾃｽﾄﾊﾟﾙｽ診断)警告が発生を確認。
ﾌﾞﾚｰｷﾍﾟﾀﾞﾙの踏み方によって、CAS制御ｵﾝ、ｵﾌを繰り返し誤警報に至る。

・VSAﾚｷﾞｭﾚｰﾀｰﾊﾞﾙﾌﾞの常時診断を検出している。

・FT図を展開して疑われる箇所を確認
CAS制御時にﾌﾞﾚｰｷﾍﾟﾀﾞﾙに振動を与えると、検出ｶｳﾝﾀｰが加算される事を確認。
実車の操作モードをHILSで再現すると実車同様検出ｶｳﾝﾀｶが加算される事を確認。

・ソフト仕様に不具合を発見。

【詳細解析結果】
・DTC121-21の誤警報に至る要因をＦＴ図にて展開。
ソフト要因で、ソレノイドオフにオンと誤認識

・レビュー、HILSにて確認：不具合を発見。
ソレノイドパルス出力と、ＣＡＳ制御、ソレノイド診断はそれぞれ別ループで行っており、ＣＡＳ制御のオフタイミングが、診断タイミングと重なった場合に、１カウント誤検知する。
(テストパルス診断)
[redacted]

・発生メカニズム
制御終了と診断タイミングが同期した場合、診断を実施するが、テストパルスを出力しない。
本来この時は診断を止めなければならないが、仕様不備により診断が実行されてしまう、この時診断では、前回の論理を用いて異常診断を行う、REG/Vの場合は論理アンマッチと判断される状況が存在し、制御が断続的に作動→停止を繰り返した場合に、異常が確定する。
1)診断用ﾃｽﾄ信号出力処理→制御終了したﾙｰﾌﾟでは出力せず､ﾊﾟﾙﾌﾟ出力ﾊﾞｯﾌｧは前回値のまま
2)制御用信号出力処理→ﾊﾟﾙﾌﾟﾓﾆﾀは最新値に更新
3)ﾃｽﾄ出力ﾓﾆﾀ信号比較処理→前回の制御用信号と、制御終了直前のﾊﾟﾙﾌﾟﾓﾆﾀ信号とを比較
4)PWM制御終了時は､ﾊﾟﾙﾌﾟ出力ON、ﾊﾟﾙﾌﾟﾓﾆﾀOFFとなり､論理不一致となった。

・安全性検証
エミッション悪化、ブレーキ効き低下無く、安全上問題となる挙動なし。

・対象機種
06M 07M アコード IMA VSAモジュレーター →[redacted]

・対策内容
1)診断用ﾃｽﾄ信号出力処理最後に、診断信号出力処理にﾃｽﾄ信号の出力通知ﾌﾗｸﾞを追加
2)ﾃｽﾄ出力ﾓﾆﾀ信号比較処理最初に、ﾃｽﾄ信号の出力通知ﾌﾗｸﾞを追加

原因

【詳細解析結果より】
●DTC121-21の検知ソフトウエアー不具合の原因により本状に至ったと判断します。

・安全性には問題なく、警告灯点灯で、IG,ON/OFFにより正常復帰する。
・対象機種は、06M 07M アコード IMA
2007年6月19日にてモジュレーター生産終了

対策

●ソフトウエア変更
・亘両生産用は2007年6月19日にてモジュレーター生産終了
・ＡＳパーツのみに、対策品適用　2007年7月13日～

既販車及び在庫品の処置

[redacted]

対策適用号機					
年月日	型式(通称名)	年式	仕向地	区分	号機

対策効果確認

HILSにおいて、本不具合発生なく、効果有りと判断します。

源流へのフィードバック

市場品質情報
〔 Ｑ Ｉ Ｓ 〕

発行部門
Q四輪品改合同

発生場所		
フレーム No.	JHMCN36466C002514	
エンジン No.		
ミッション No.		
ミッション区分	5AT	
走行距離、時間	25617	Mile
登録年月日	2006/06/03	
発生年月日	2006/12/13	

新部品番号	57110-SDR-A35		
主部品番号	57110-SDR-A33		
症状コード	03205	点灯する(PGM-FI,MIL除く)	
EDP KEY型式名			
原因区分	仕様		
責任区 部門			
責任区 取引先名	日信工業（株）	コードNo.	5204
対策区分	完了		
対策内容コード	3415	ｾｯﾃｨﾝｸﾞ変更	
発生予測	あり(散発)		
対策パーツ	Ⅲ	有	
見直し項目	図面	作業標準	

月日	回答部門(所内)	承認	確認	作成
07/05	四輪品改合同			[redacted]

月日	回答部門(所内)	承認	確認	作成

月日	回答部門(所外)	承認	確認	作成

発行	年月日	記事	承認	確認	確認	作成
1	2007/07/10	完了発行	[redacted]			
0	2007/06/11	新規				

Q.I.S

推進NO: MV20070607164145

解析結果

○ﾃｽﾄ信号の出力通知ﾌﾗｸﾞを元に比較処理を実行→診断用ﾊﾞﾙﾌﾞ出力時のみﾊﾞﾙﾌﾞﾓﾆﾀとの比較を行うため、必ず論理一致

EVENT FLOW
RESPONSIBLE DEPARTMENT AND PERSON
COMPLETION DATE
⬇
RECEPTION
Q 4Rin Hinkai Godo [redacted]
2007/06/07
⬇
INFORMATION INVESTIGATION
Q 4Rin Hinkai Godo [redacted]
2007/06/07
⬇
INVESTIGATION AND ANALYSIS
Q 4Rin Hinkai Godo [redacted]
2007/06/20
⬇
COUNTERMEASURE REQUEST
Q 4Rin Hinkai Godo [redacted]
2007/06/06
⬇
INTERMEDIATE REPLY
⬇
COUNTERMEASURE REPLY
AQAO [redacted]
2007/07/05
⬇
COUNTERMEASURE ISSUED
2007/06/29
⬇
COUNTERMEASURE APPLICATION
⬇
COMPLETED
Q 4Rin Hinkai Godo [redacted]
2007/07/09

RECEPTION DATE
/

COUNTERMEASURE REQUEST

ADDRESSEE		RECEPTION			
	AQAO		/		
		RECEPTION	/		

RANK
C

DATE:		
APPROVAL	CHECK	CREATOR

MODEL CODE YM/MODEL NAME	TITLE	QIS CONTROL #
CN3	VSA Modulator - DTC 121-21(TCS Solenoid) <QAH2155>	MV20070607164145
06/ACCORD/		
OCCURRENCE DESCRIPTION		

The ABS, VSA, and VSA activation indicator lights all come on in the dash.

REPLY

REPLY TO Q 4Rin Hinkai Godo VIA BY Jun 20

INVESTIGATION AND ANALYSIS RESULTS

Investigation result (Initial analysis)
- Claimed symptom confirmation: Warning of DTC121-21 (REG/V test pulse diagnosis) on Accord IMA vehicle
CAS control ON and Off are repeated and leads to false alarm depending on the way of brake pedalling.

- Constant diagnosis of VSA regulator valve is detected.

- Confirmation of suspicious area when the FT diagram is developed
Confirmed that the detection count was added on when the brake pedal was vibrated with CAS control on.
Confirmed that the detection count was added as it happened to the actual vehicle when the actual vehicle operation mode was recreated with HILS.

- Defect in the software specification was found.

[Detailed Analysis Result]
- Factors that led to false alarm of DTC121-21 were developed by FT diagram.
Solenoid OFFwas falsely recognized as ON due to software factor.

- Confirmation by review and HILS: Failure was found
Solenoid pulse output, CAS control and solenoid diagnosis are conducted in different loops and when the off timing of AS control overlaps the diagnosis timing, one count is misdetected.
<Test pulse diagnosis>
[redacted]

- Occurrence Mechanism
When the control ending and the diagnosis timing are overlapped, diagnosis will be conducted but test pulse is not output. In such case, diagnosis have to be stopped but is is conducted due to the specification failure. This diagnosis will have abnormal diagnosis using the previous logic. In the case of REG/V, it judges as logic unmatch and abnormality will be confirmed if control repeats functioning and stop.
1) Out put treatment of test signal for diagnosis - Signal is not output in the loop in which the control has finished and the valve output buffer stays as the previous value.
2) Out put treatment of signal for control - Valve monitor is updated to the latest value
3) Test output - Monitor signal comparison treatment - Comparison of previous signal for control and valve monitoring signal right before control ending
4) When PWM control ended, valve output was ON and valve monitor was OFF and resulted logic unmatch.

- Safety verification

DATE	REPLY DEPARTMENT (IN-HOUSE)	APPROVAL	CHECK	CREATOR
07/05	AQAO			[redacted]

DATE	REPLY DEPARTMENT (IN-HOUSE)	APPROVAL	CHECK	CREATOR

DATE	REPLY DEPARTMENT (OUTSIDE)	APPROVAL	CHECK	CREATOR

CAUSE ANALYSIS

[According to the detailed analysis result]
It was judged that the failure was caused by the detection software failure of DTC 121-21.

- No safety problems, and IG ON/OFF will recover to normal condition even if the warning light became on.
- Affected models are 06M 07M Accord IMA
Production of modulator has been completed on June 19 2007.

COUNTERMEASURE

Change of software
- Modulator production for vehicle production has been completed on June 19 2007.
- Apply countermeasure parts for AS parts only from July 13 2007.

TREATMENT FOR STOCK & SOLD UNITS & PARTS

[redacted]

COUNTERMEASURE APPLICATION INFORMATION

DATE	MODEL CODE (MODEL NAME)	YM	DEST.	CATEGORY	PRODUCT #

COUNTERMEASURE EFFECTIVENESS

No failures of this type has occurred in HILS. Judged as effective.

FEED BACK TO THE SOURCE

QUALITY IMPROVEMENT SHEET
[Q I S]

ISSUED BY
Q 4Rin Hinkai Godo

OCCURRENCE MARKET			
REPORT #	AHOS2007060601-00		
FRAME #	JHMCN36466C002514		
ENGINE #			
TRANSMISSION #			
TRANSMISSION CATEGORY	5AT		
MILEAGE OR HOURS	25617	Mile	
REGISTRATION DATE	2006/06/03		
OCCURRENCE DATE	2006/12/13		
PRODUCT DATE	2006/04/25		

SERVICE PART #	57110-SDR-A35			
MAIN CAUSAL PART #	57110-SDR-A33			
CAUSAL PART SYMPTOM CODE AND DESCRIPTION	03205	Check or indicator l		
MODEL CODE				
CAUSE CATEGORY	Spec of Supplier			
RESP. DEPARTMENT				
RESP. SUPPLIER	NISSIN KOUGYO KK	CODE	5204	
COUNTERMEASURE CATEGORY	Closed			
COUNTERMEASURE PART SYMPTOM CODE AND DESCRIPTION	3415	change of se		
OCCURRENCE FORECAST	Sporadic			
COUNTERMEASURE PART AVAILABILITY	Ⅲ	Yes		
REVISED ITEM	DRAWING	OPERATION STANDARD		

ISSUE	DATE	VERSION	APPROVAL	CHECK	CHECK	CREATOR
△						
△						
△						
1	2007/07/10	FINISH	[redacted]			
0	2007/06/11	NEW				

Q.I.S

QIS CONTROL #: MV20070607164145

ANALYSIS RESULTS

No worsening of emission or brake function decrease. No behavior of safety problems.

- Affected model
06M 07M Accord IMA VSA modulator - [redacted]

- Countermeasure
1) In the end of output treatment of test signal for diagnosis, add output notification flag of test signal to output treatment of diagnosis signal

2) Test output - Add output notification flag of test signal to the beginning of monitor signal comparison treatment
Comparison treatment will be conducted according to the output notification flag of test signal ---> Comparison with the valve monitor will be conducted only at valve output for diagnosis, and so the logic always match.