

To: MMNA

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Doc.No.AQ-F080017(1/10)

# **3A45 P/W AS SW Failure Returned Part Analysis Result Report**

**March 4, 2008**

**Omron Corporation AEC Company**

**Quality Assurance Division**

**Omron Dualtec Automotive Electronics Inc.**

**Quality Assurance**

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# 1 Failure Outline

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## ◆ Objective

P/W AS SW on 3A45 owned by the employee at MMNA Cypress developed a smoking failure. The root cause of this failure needs to be identified.

## ◆ Failure Occurrence Status

- In the evening of January 14, 2008, smoke started from AS seat P/W SW immediately after IG was turned on giving off burnt smell.
- Approximately since two months ago, P/W SW operational failure has been occurring and DR seat Master SW becomes inoperative. AS seat SW sometimes becomes inoperative.

Vehicle No.	VIN:4A4MM31S64E113251(04.5MY)
Vehicle manufactured date	March 15, 2004
Vehicle sales date	October 23, 2004
Failure occurrence date	January 14, 2008
Mileage	Not confirmed
P/W SW production lot No.	A4050(Manufactured on Feb.19, 2004)

## 2 Conclusion

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### ◆ Conclusion

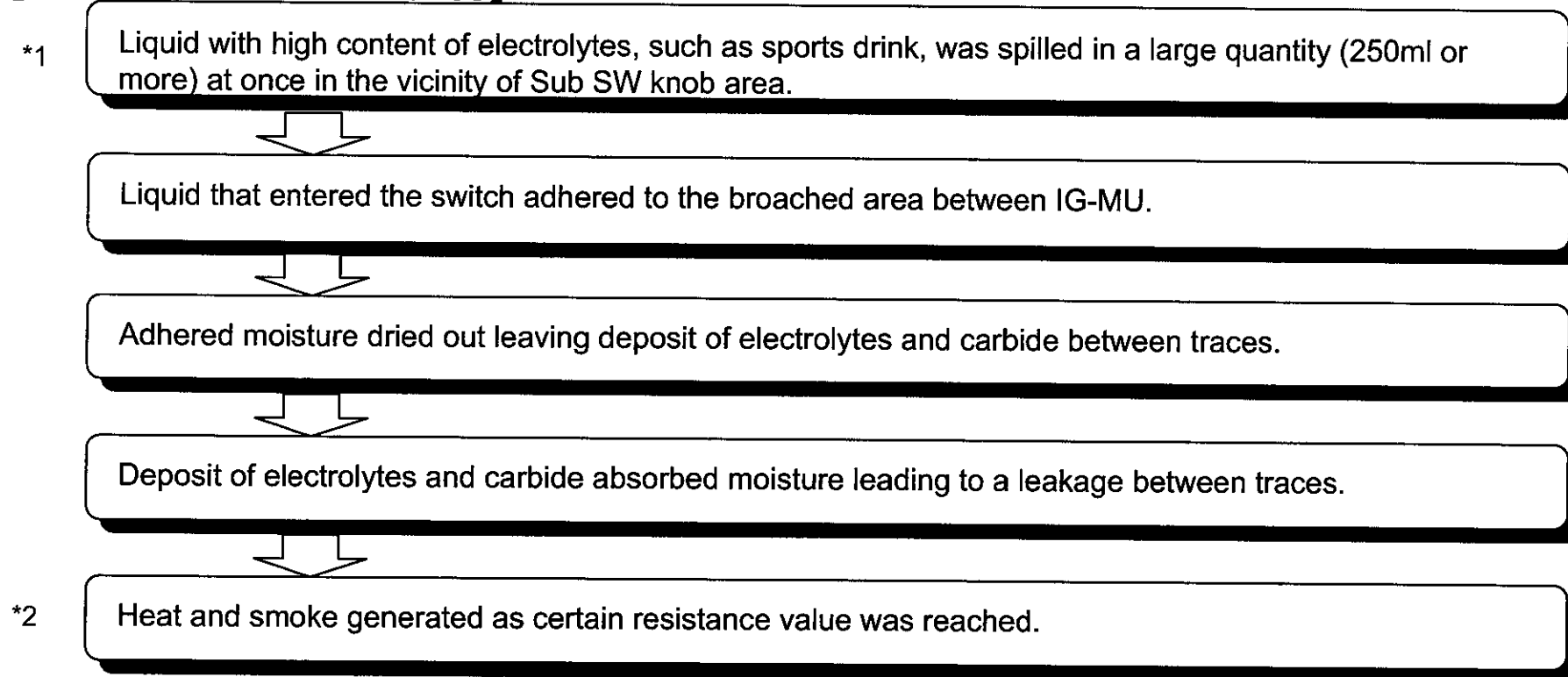
We have concluded that the recent SW failure led to smoking by the same mechanism as 2C41 P/W AS SW failure reported back on September 17, 2004.

Based on the following consideration (\*1, \*2 respectively), the recent failure is thought to be an extremely rare case.

\*1: The possibility of its occurrence in the market is very low.

\*2: Recreation test result shows that the probability of recurrence is low.

### **[Mechanism of occurrence]**

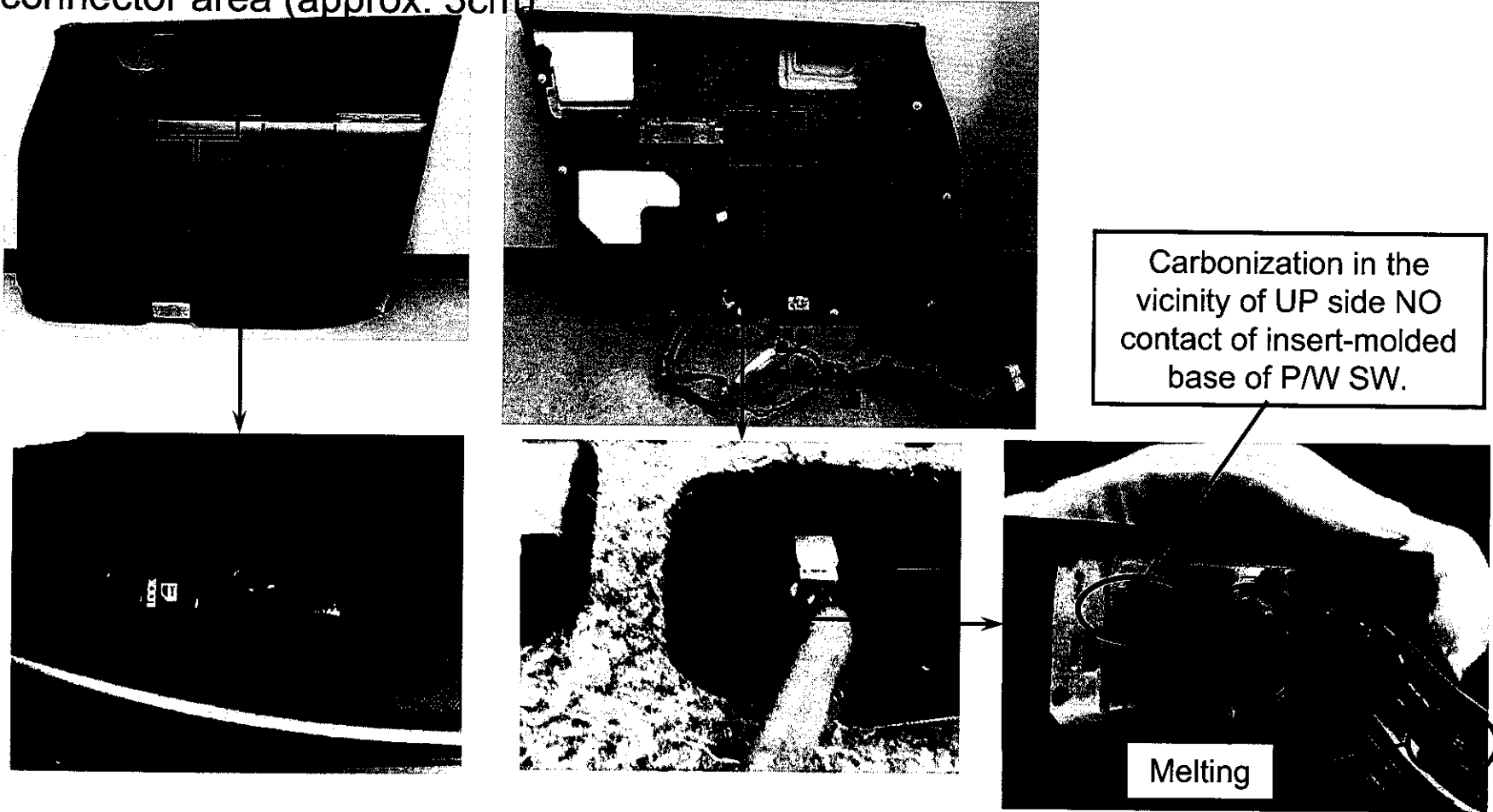


# 3 Returned Part Investigation Result

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## ◆ Trim appearance examination

- Carbonization was confirmed in the vicinity of UP side NO contact on insert-molded base of P/W SW.
- Confirmed melting of P/W SW connector housing and the harness coating in the connector area (approx. 3cm)

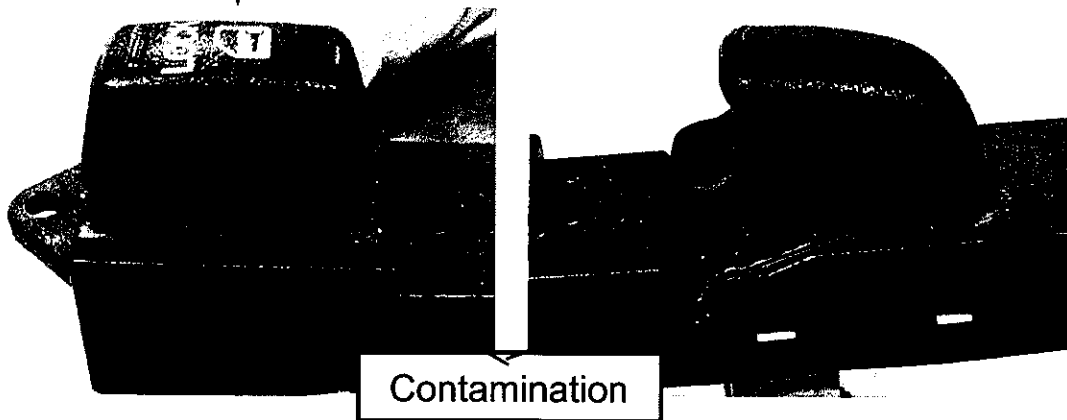
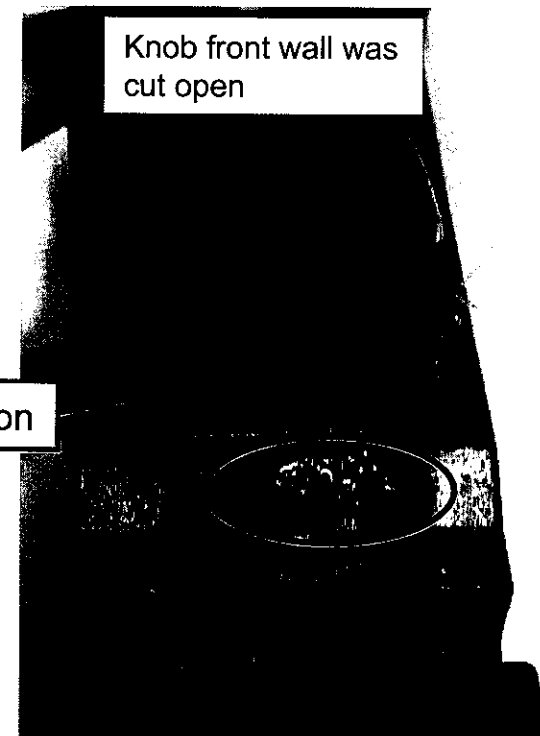
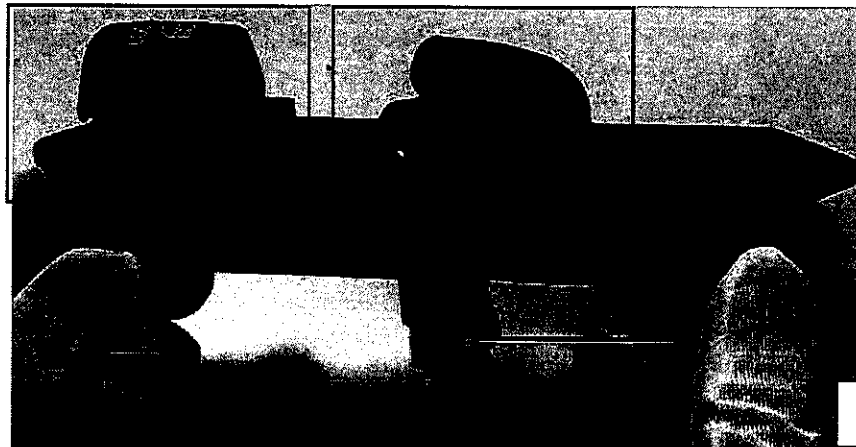


### 3 Returned Part Investigation Result

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#### ◆ SW appearance examination

- Contamination confirmed in the vicinity of P/W SW knob and D/L SW knob.
- Confirmed melting at the upper portion of UP side NO contact on case surface.



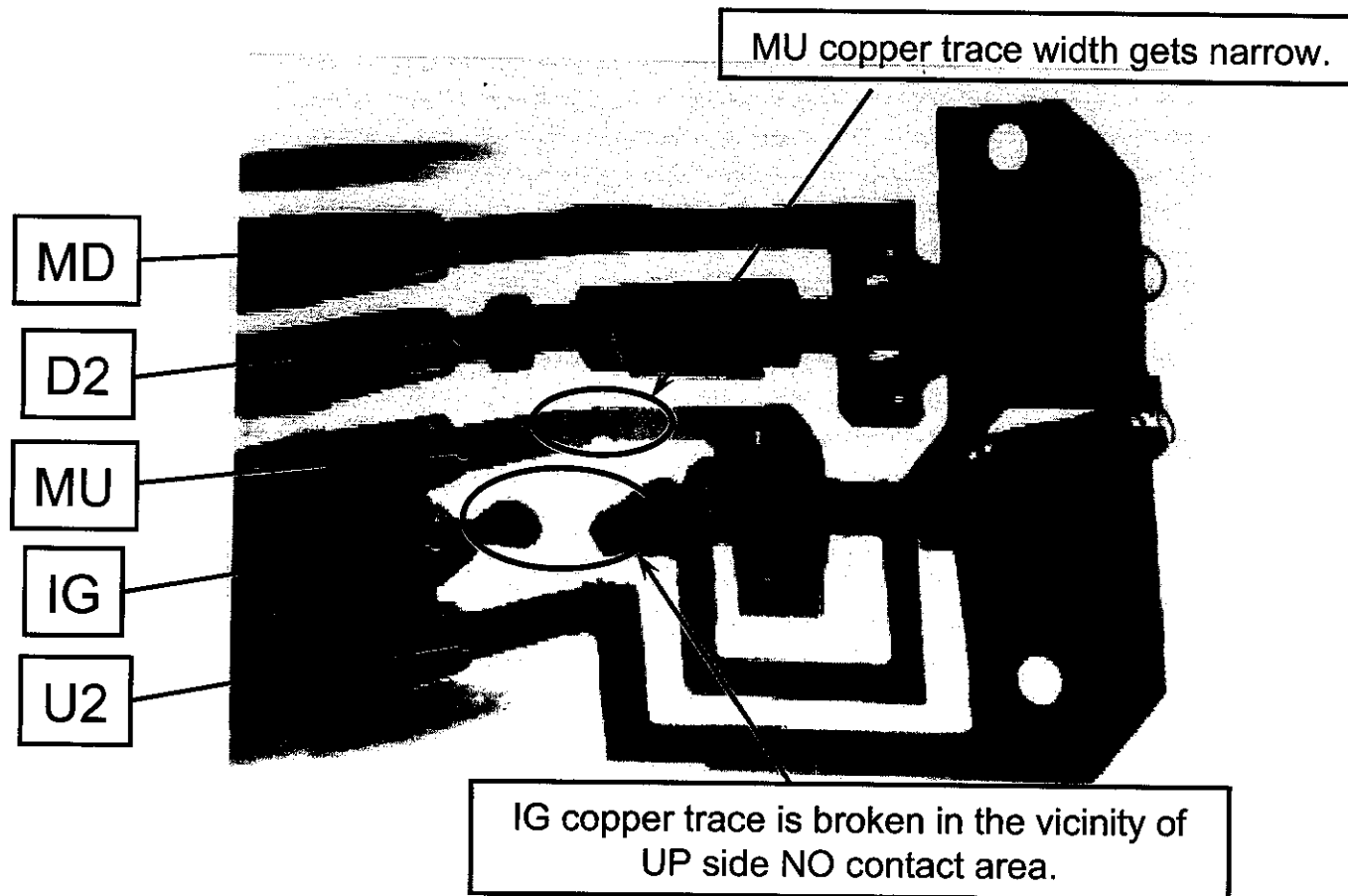
Melting at the upper portion of UP side NO contact of the case.

### 3 Returned Part Investigation Result

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#### ◆ X-ray internal examination

- Confirmed broken IG trace in the vicinity of Up side NO contact area (connector side) and melted MU trace with a narrowed width.

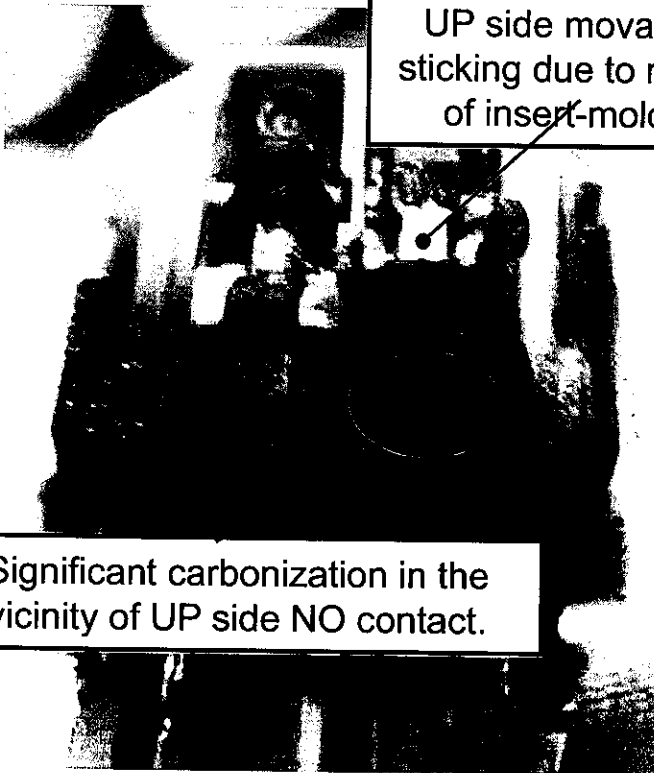


### 3 Returned Part Investigation Result

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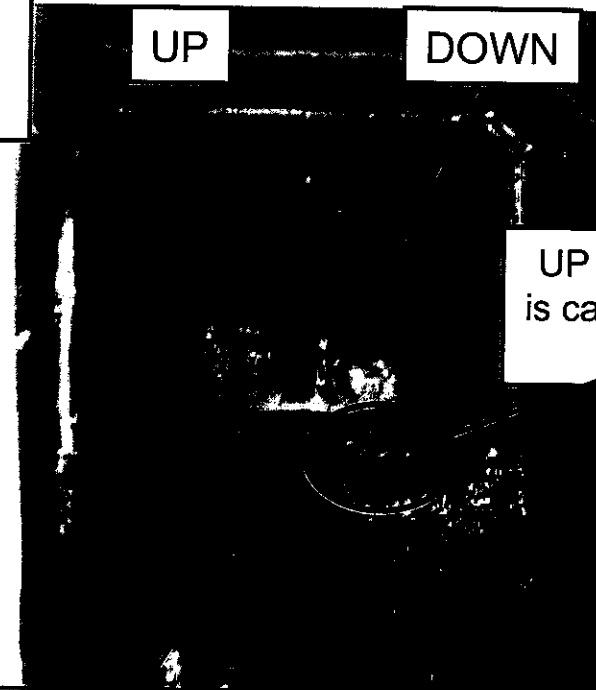
#### ◆ P/W SW internal examination

- Confirmed significant carbonization in the vicinity of UP side NO contact area.
- Confirmed that movable plate in UP side is sticking due to melting of insert-molded base resin.
- Confirmed carbonization in the upper portion of UP side NO contact (between IG-MU) on the back of the case.
- Confirmed UP side plunger got carbonized and broken.



Insert-molded base, top side

UP side movable plate is sticking due to resin melting of insert-molded base.



Carbonization in the upper portion of UP side NO contact (between IG-MU)

Case, back side

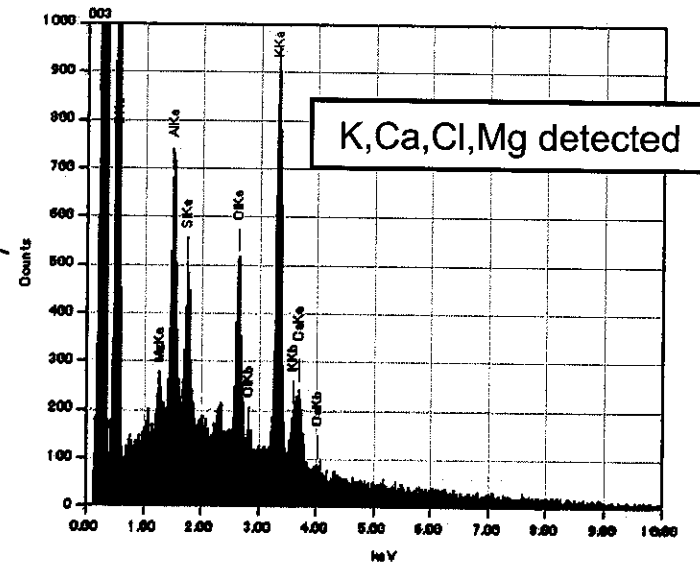
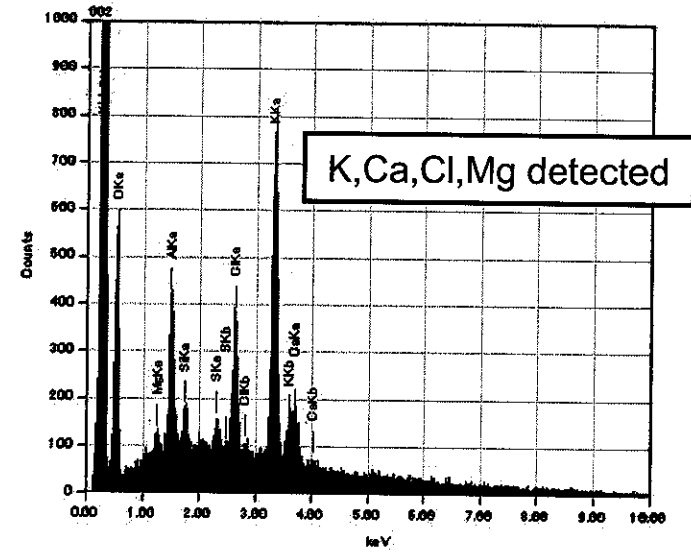
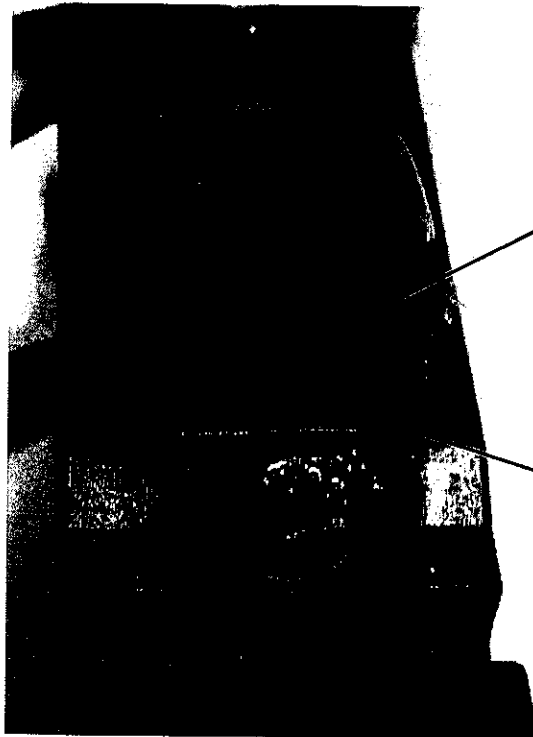


# 3 Returned Part Investigation Result

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## ◆ Element analysis

From the fact that ionic impurities (i.e. K,Ca,Cl,Mg,etc.) are found under P/W SW knob, fluid intrusion inside SW is considered a high possibility.



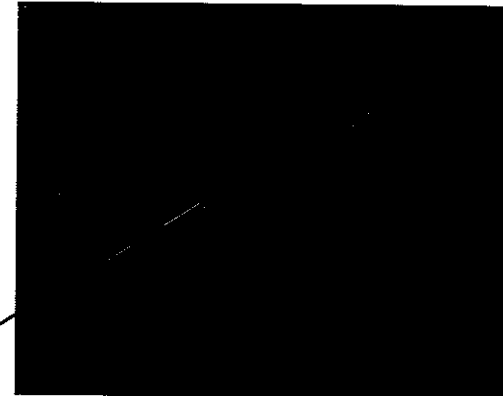
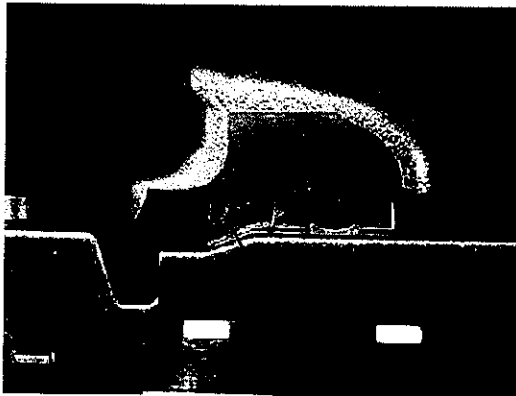
# 4 Countermeasure Implementation History

## ◆ History of countermeasure implementation

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\* Grease change      NS1696(Syn-tech) → Multemp D #2      Sep-1, 2004

\* Case change      Jan-27,2005



Additional  
figure