

## Eight Discipline Report (8D Report)

To: <b>Customer</b>	8D report No.:
From: : <b>Chicony Power Technology</b>	RMA claim No.:
CC :	Chicony Power P/N: <b>A035R004L</b>
	Customer P/N:
Submit date: <b>2014/09/04</b>	Product description: <b>Adapter 35W</b>
Receive date: <b>2014/09/01</b>	Defect D/C or Lot No.: <b>140628</b>
<b>Subject : Drop test fail 3pcs units(5 , 6, 7) , 由於 PCB &amp; T1 及 CASE 未固定好, 造成有元件損毀, 因此 Drop test 後發生有異音、failed hipot、輸出無法正常切換的問題。</b>	

### D1.) 問題解決成員: Use Team Approach

主持者 (Team Leader) : **Walt\_Ni**

內部成員 (Internal Team Members):

**RD: Mark\_Meng / Jay\_Huang**

**ME: Hank\_Lin / Sam\_Li**

**Sales: Leo\_Lo / Robert\_Cheng**

外部成員 (External Team Member):

### D2.) 問題說明: Problem Description:

(Note: Use **who, what, when, where, why, how, how many** to specify the Customer's problem.)

Customer returned the drop fail units of rev: PB2 to CPT on 01 Sep. 2014, S/N: 140628003BC7, 140628003CC7 and 140628003DC7.

- 140628003BC7 - Rattle noted after Front/Right drop and failed hipot after drop.
- 140628003CC7 - Rattle noted and output voltage fluctuates after all drops and failed hipot after drop.
- 140628003DC7 - Movement noted prior to drops; output is 12V, cannot switch to 32V after drop.



### D3.) 內部或客戶的暫時解決辦法及實施日期: Implement and Verify Containment Action:

(Note: Internal / external containment action effectiveness and date.)

### Checked and analysis the return units.

D4.)不良原因確認: Define and Verify Root Causes:

(Note: Identify and verify all suspect causes, which needs explain why the problem occurred.)

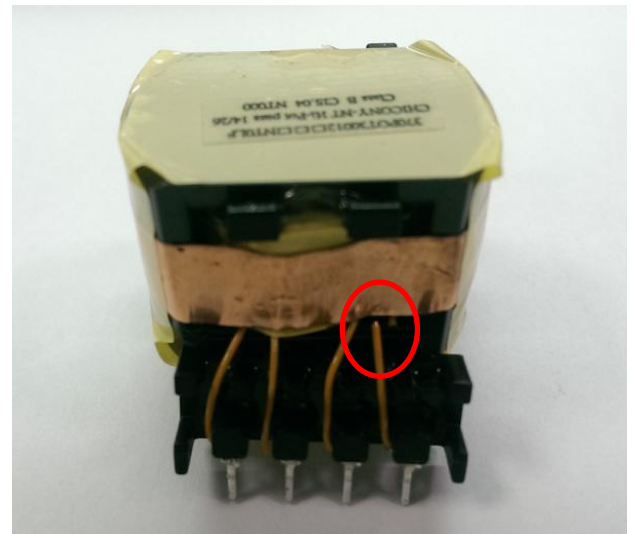
#### 1. S/N:140628003BC7

We checked the Hi-pot test and the result is fail. The output voltage regulation is passed.

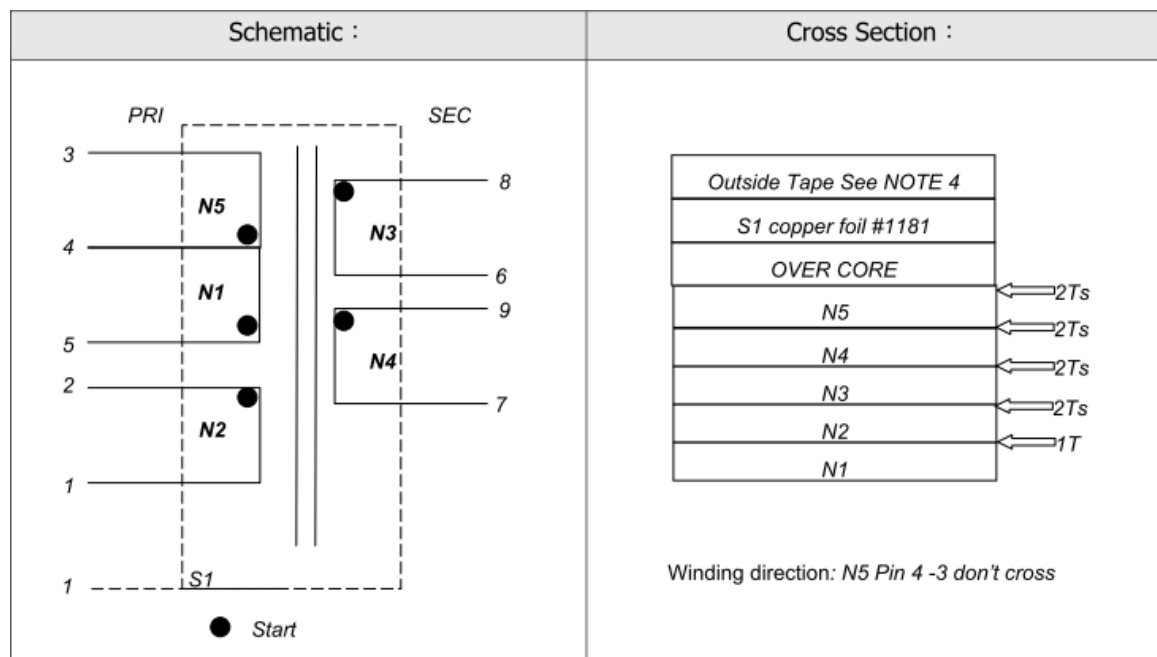
The return unit has rattling sound.



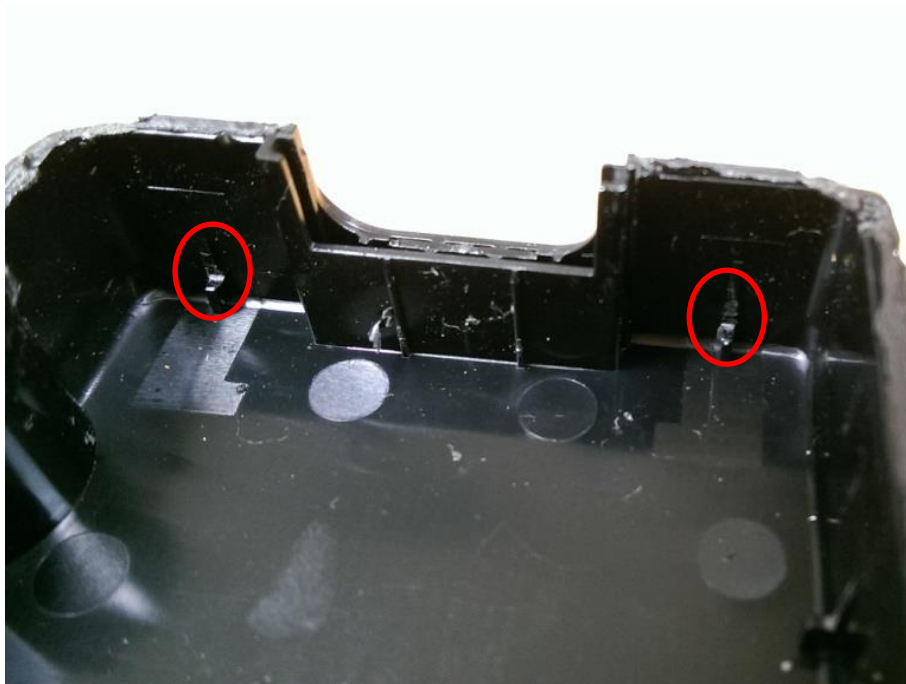
After open the case, we observed the transformer bobbin was broken and the secondary winding (N4) of transformer had snapped. The copper shield (S1) is soldered to pin 1 and pin 1 is connected in primary side ground. The copper shield (S1) is pasted on the core so the transformer core was defined primary side then if the triple wire of secondary snapped, it will cause arc due to the insulation of triple wire was broken (insulation is insufficient). We found the root cause of hi-pot was an arc between copper and the secondary winding of transformer during the hi-pot test. The secondary windings (N3 and N4) are connected in parallel thus there is still output even if one winding is broken.



The transformer schematic as below:



The slot to hold the PCB are cracked on the chassis, and the PCB cannot be fixed in the case. It's the reason why the unit is rattled.



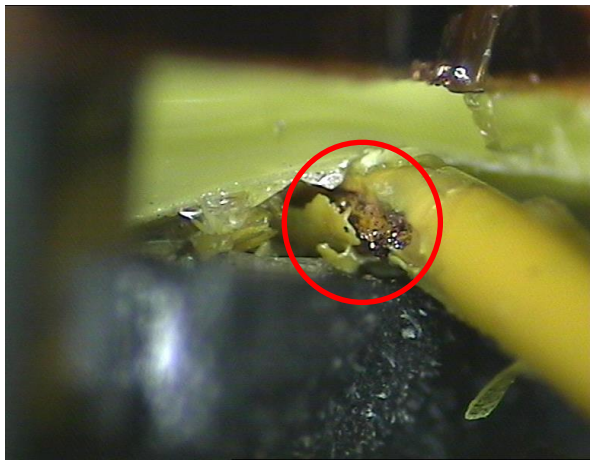
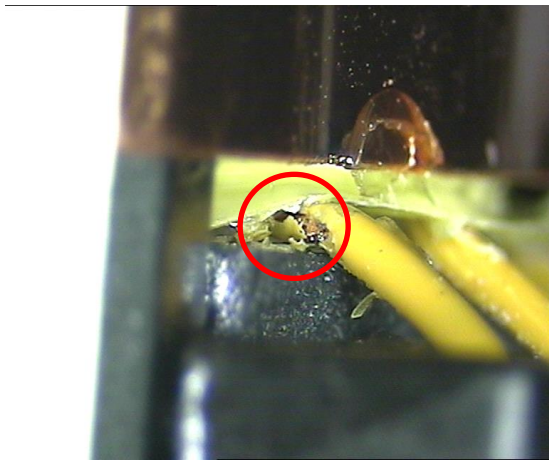
## 2. S/N:140628003CC7

We checked the Hi-pot test and the result is fail. The output voltage regulation is passed.  
The return unit has rattling sound.

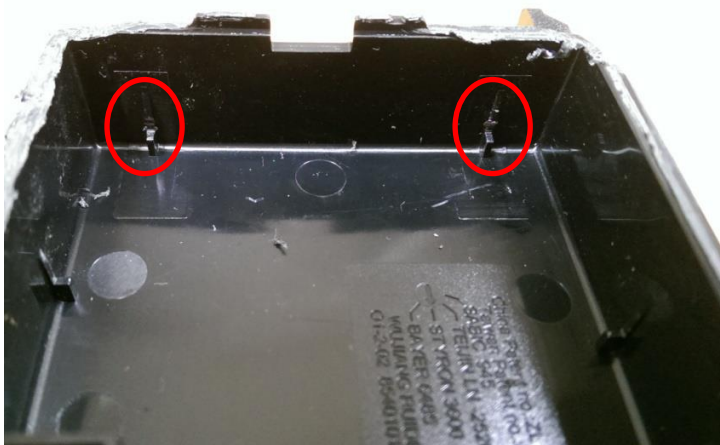


After open the case, we observed the transformer bobbin was broken and triple wire winding (N3) was breakage. The copper shield (S1) is soldered to pin 1 and pin 1 is connected in primary side ground. The copper shield (S1) is pasted on the core so the transformer core was defined primary side then if the triple wire of secondary was breakage, it will cause arc due to the insulation of triple wire was broken (insulation is insufficient). We found the root cause of hi-pot was an arc between copper and the secondary winding of transformer during the hi-pot test.





The slot to hold the PCB are cracked on the chassis, and the PCB cannot be fixed in the case. It's the reason why the unit is rattled.



### 3. S/N:140628003DC7

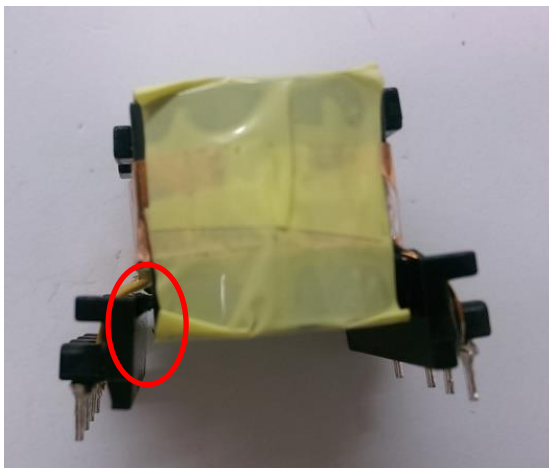
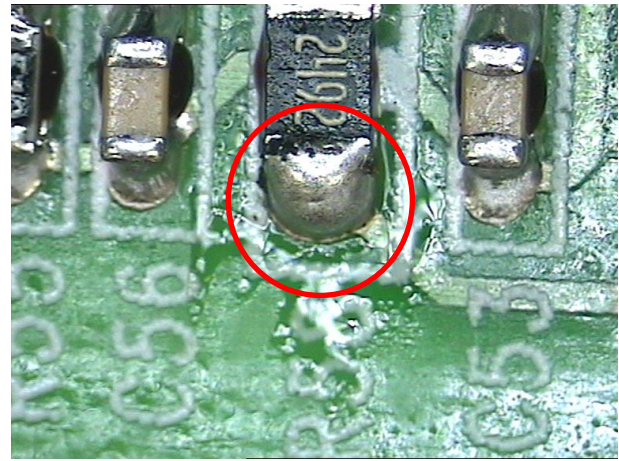
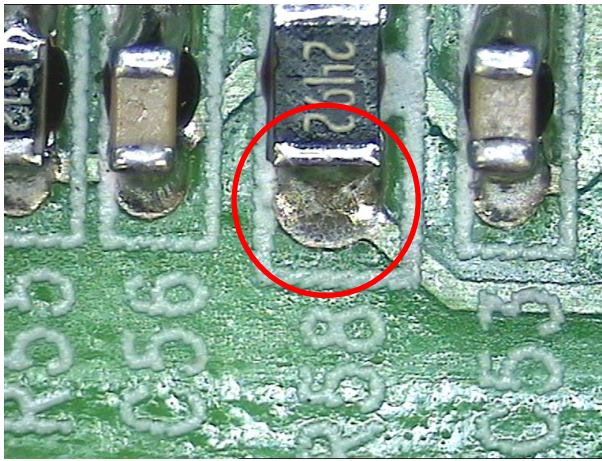
We checked the Hi-pot test and the result is passed. The output voltage was 12V only.



After open the case, we observed the transformer bobbin was broken and the R58 may has cold soldering after drop test. The output voltage was normal 32V after we re-welded the R58.

Before re-welded

after re-welded



#### 4. Summary

No	S/N	Hi-pot	Rattle sound	Output
5	140628003BC7	Fail	Yes	32V



6	140628003CC7	Fail	Yes	32V
7	140628003DC7	Pass	No	12V only

**D5.) 改善措施: Corrective Action Verification:**

**(Note:** Be make sure the corrective actions is effective in process as well as able to fix the customer complaint problem)

1. Add gray glue between the primary of transformer and CK2. Amount of glue is 2g



2. Add gray glue between secondary bobbin of transformer and PCB for fixing the transformer. Amount of glue respectively: 1g.



3. Add gray glue between PCB and case to avoid the rattle sound. Amount of glue respectively: 1g.



4. Add epoxy rubber between bobbin and core of transformer to avoid transformer bobbin broken.



SPEC:

  
EPOXY Rubber  
H907-HF-Z.pdf

  
transformer spec. for  
PB3.pdf

5. Definition MOI for soldering inspection



MOI for soldering  
inspection.xls

6. Conclusion

We tested 9 units with above solution:

- (1) Three(3) units out of 9 were tested according to procedure of unit no# 5 in below table, all passed.
- (2) Three(3) units out of 9 were tested according to procedure of unit no# 6 in below table, all passed.
- (3) Three(3) units out of 9 were tested according to procedure of unit no# 7 in below table, all passed.



Unit	Inspection	Drop 1	Drop 2	Drop 3	Inspection
1	i, P,H	<b>B</b>	<b>FT</b>	<b>F</b>	i, P, H
2	i, P,H	<b>BER</b>	<b>EL</b>	<b>TL</b>	i, P, H
3	i, P,H	<b>TFL</b>	<b>L</b>	<b>BR</b>	i, P, H
4	i, P,H	<b>ET</b>	<b>BFR</b>	<b>E</b>	i, P, H
5	i, P,H	<b>TR</b>	<b>FR</b>	<b>TER</b>	i, P, H
6	i, P,H	<b>ER</b>	<b>FB</b>	<b>TEL</b>	i, P, H
7	i, P,H	<b>BEL</b>	<b>BFL</b>	<b>BL</b>	i, P, H
8	i, P,H	<b>EB</b>	<b>R</b>	<b>T</b>	i, P, H
9	i, P,H	<b>FL</b>	<b>TFR</b>	<b>TEL</b>	i, P, H
10	i, P,H	<b>BER</b>	<b>TFR</b>	<b>TFL</b>	i, P, H
i = Inspection of power supply. P = Power up and inspect supply Voltage. H = Hipot					

**D6.)**改善措施實施日期:Implement Permanent Corrective Actions:

(**Note:** Be provide the phase-in date or lot# of corrective actions **implementation** in process)

Due date : PB3

**D7.)**預防再發生措施:Prevent Recurrence:

(**Note:** Modified the management, operating systems, practices, and procedures to prevent recurrence for the problems as well as lessons learned cases.)

**D8.)**確認並感謝問題解決成員:Check and Congratulate the Team:

(**Note:** Recognize the collective efforts of the team.)

RD: Mark\_ Meng RD: Jay\_ Huang ME: Hank\_Lin Sales: Leo\_Lo