Title: APCC Radio and Solar Powered Repeater Assembly Procedure

Document Number: 123-240-030-003
Department: Manufacturing

Revision History

Rev.	Description of Change	Originator	Date
A	As Issued per ECO-000169	M. Miyasaki	12/17/2010
B	Updated per ECO-000223	S. Lodahl	5/24/2011
C	Updated per ECO-000318	M. Miyasaki	6/18/2012
D	Updated per ECO-000400 to add items for Solar RP	M. Miyasaki	9/28/2012
E	Updated per ECO-000432	M. Miyasaki	2/6/2013
F	Addition of desiccant per ECO-000476	M. Miyasaki	5/9/2013
G	Addition of dielectric compound per ECO-000510	M. Miyasaki	7/19/2013

Tools List

Item	Description	Quantity
N/A	Torque meter	1
N/A	3”-lbs torque driver with Phillips screwdriver bit	1
N/A	7”-lbs torque driver with Phillips screwdriver bit	1
N/A	Padded pliers	1
N/A	Alcohol based cleaner	A/R
N/A	Strap Wrench	1
N/A	Scissors	1
349-240-100-001	Dielectric compound	A/R

References

Item	Description
121-240-030-007	APCC Radio Test Instructions
122-240-030-004	APCC Family Part Number and HW Rev Marking Instructions

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Item	Description	Qty
See below	PCBA	1

Assembly Steps	
1	Perform Program and Functional Test of PCBA.
2	
3	
4	4
5	5

Tool	Description	Qty

Notes:

For SPP Radio, use P/N 700-240-030-009

For Solar RP, use P/N 700-240-020-011

1 For SPP Radio see document P/N 121-240-030-007
For Solar RP see document P/N 121-240-020-001

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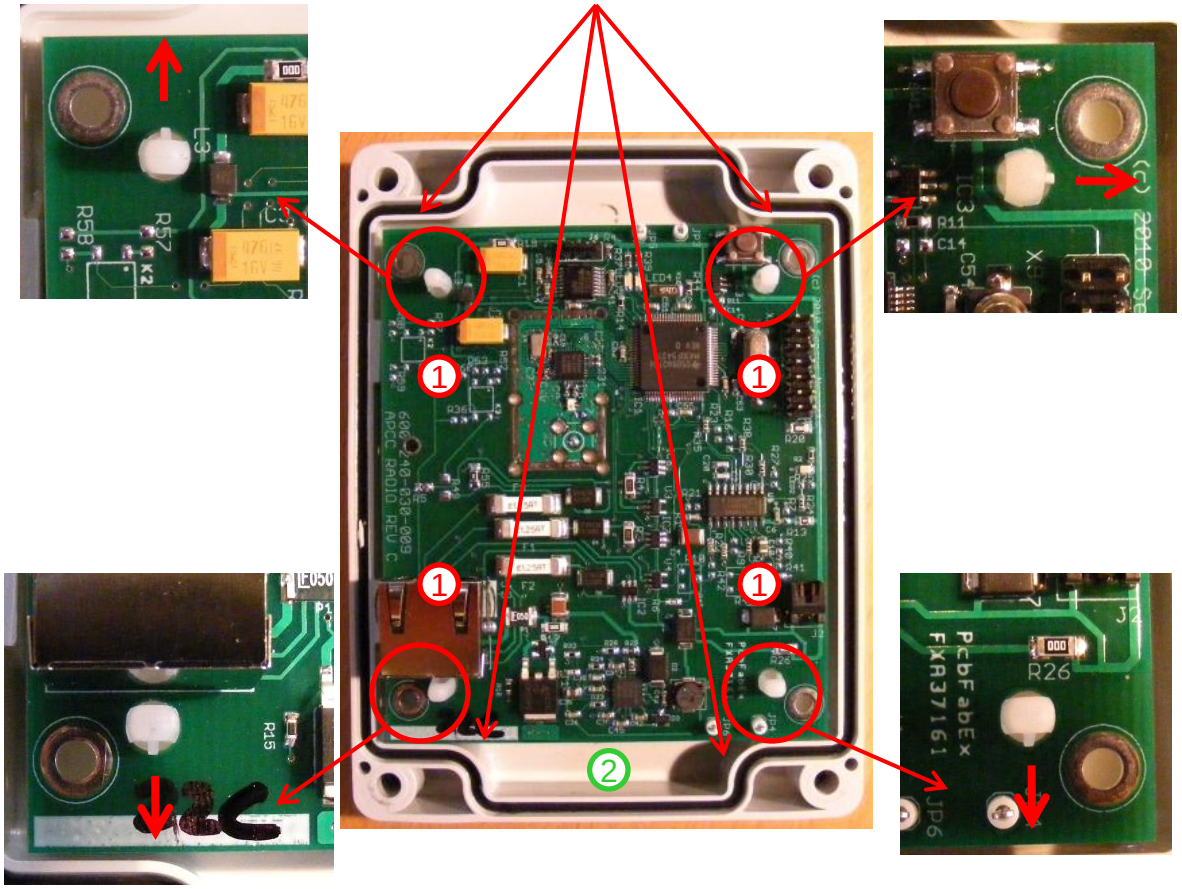
Attention: Clean surface with alcohol based cleaner

Item	Description	Qty
353-240-020-002	Posts, PCB, adhesive	4

Mount board ~1/16” away from edges



Assembly Steps	
1	Insert posts into burned-in PCBA oriented as shown.
2	Remove liners off posts and adhere to cover.
3	3
4	4
5	5

Tool	Description	Qty
	Alcohol based cleaner	A/R

Notes:

Step:	**Assembly of PCBA in Enclosure**
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Item	Description	Qty
See below	PCBA	1

Assembly Steps	
1	Perform Burn-in Test.
2	
3	
4	4
5	5

Tool	Description	Qty

Notes:

For SPP Radio, use P/N 700-240-030-009

For Solar RP, use P/N 700-240-020-011

1. Perform Burn-in Test:
   - For SPP Radio, connect unit to APCC and Isolator
   - For Solar RP, connect to provided battery pack
   - Place in 60°C oven
   - Burn-in for 48 hours

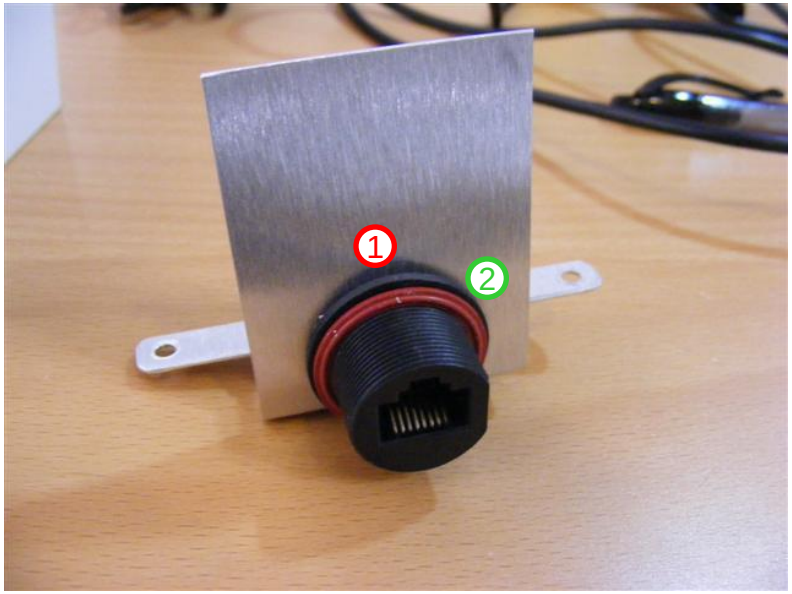
Item	Description	Qty
330-240-030-007	Enclosure, drilled	1
320-240-015-008	Bracket,Retention,RJ45 Connector,Bulkhead	1
352-240-015-001	Receptacle,Conn,RJ45	1
321-240-030-025	Screw,M3X5MM,SS,18-8,PPH,DIN7985	2

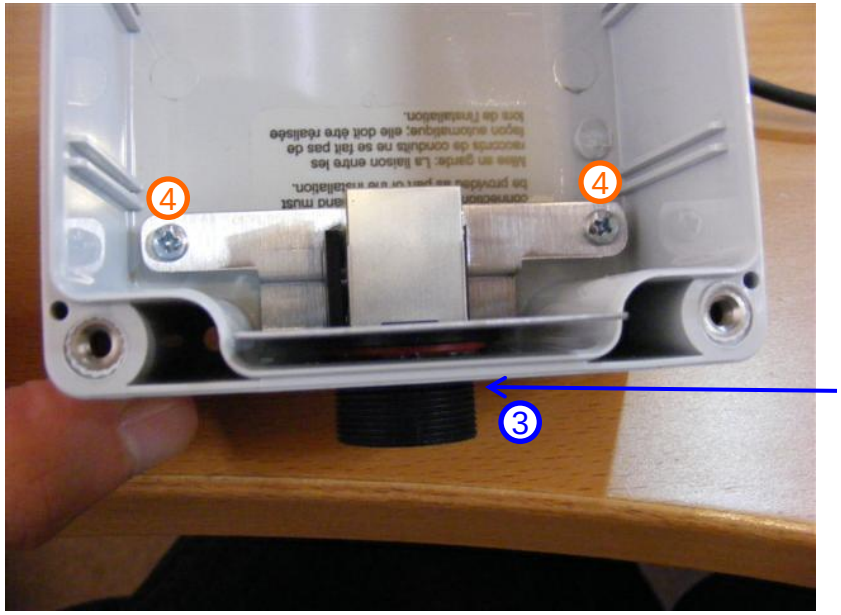
Assembly Steps

1	Install Ethernet connector into bracket. Ensure Ethernet contacts are on bottom
2	Install gasket with ridge facing away from bracket
3	Check that no burrs or scratches are on the outer enclosure surface
4	Secure bracket and connector with screws.
5	

Tool	Description	Qty
	Philips screw driver	1
	Torque Driver	1

Notes:





Screw Torque Requirement: 6 in-lbs

No burrs and scratches on outer surface

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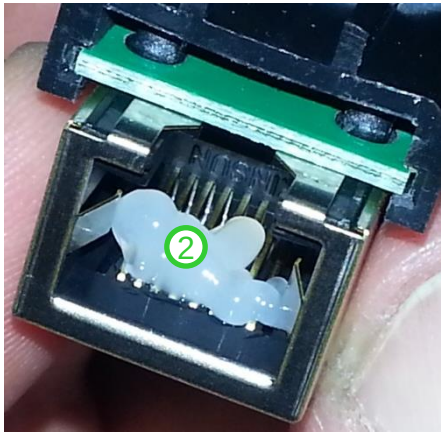
Attention: Clean surfaces with alcohol based cleaner

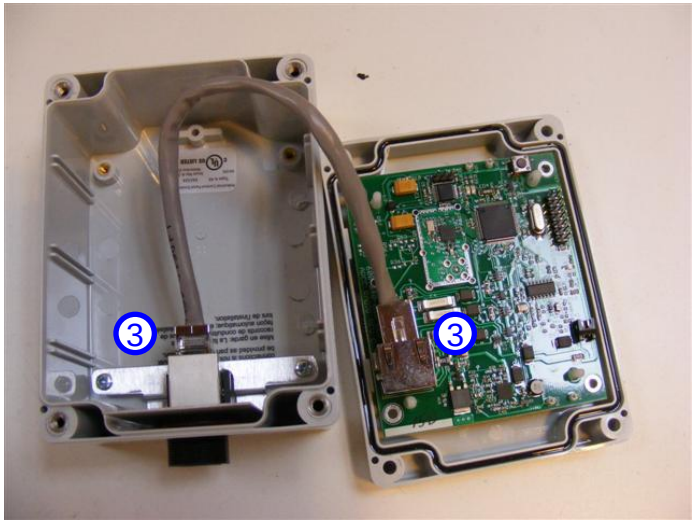
Item	Description	Qty
350-240-020-007	Cable,Ethernet,6”	1
340-240-100-005	VHB tape, 1”	½”
399-240-020-002	Desiccant pack	1
349-240-100-001	Dielectric compound	A/R



Assembly Steps	
1	Adhere desiccant to enclosure as shown with indicator strip facing UP.
2	Inject a small amount of Dielectric compound on INNER side of RJ45 connector as shown.
3	Insert Ethernet connector into J3 on Radio board and Ethernet connector on housing.
4	Orient cover as shown and assemble onto housing.
5	Torque screws (4) to 3”-lbs.

Screw Torque Requirement: 3 in-lbs

Tool	Description	Qty
	3”-lbs torque driver	1
	Alcohol based cleaner	A/R
	Scissors	1



Notes:

Dielectric compound may be placed in syringe to aid placement.

Ensure dielectric compound covers all Ethernet pins.

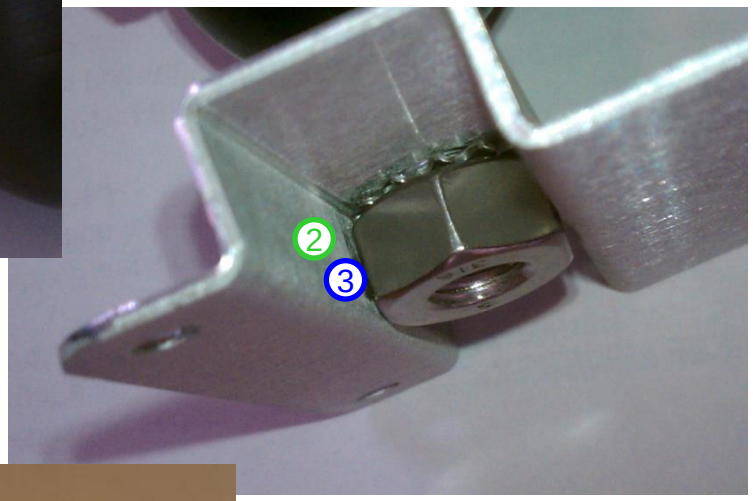
Ensure Ethernet cable is properly snapped into place.

Item	Description	Qty
320-240-030-010	Bracket,mounting	1
353-240-020-007	Ball, rubber, 1.5” dia	1
321-240-020-016	Nut, 3/8-16, Hex	1
349-240-001-005	Threadlocker, Loctite 271	A/R
321-240-020-017	Lock washer	1

Assembly Steps	
1	Add 3 drops on the threads of the ball mount
2	Place the nut and lock washer inside the mounting plate
3	Screw the Ball Mount through the plate. Tighten with strap wrench 20º past hand tight
4	Add 1 drop of thread locker where the threads of nut touch mating part
5	Wait 6 minutes before handling part after applying thread locker

Tool	Description	Qty
Wrench	Strap Wrench	1

Notes:



5 Cure time:
6 minutes

Step:	Preparation of Mounting Bracket
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Item	Description	Qty
	Mounting bracket assy	1
321-240-030-011	Screw, 8-16, threadform	4

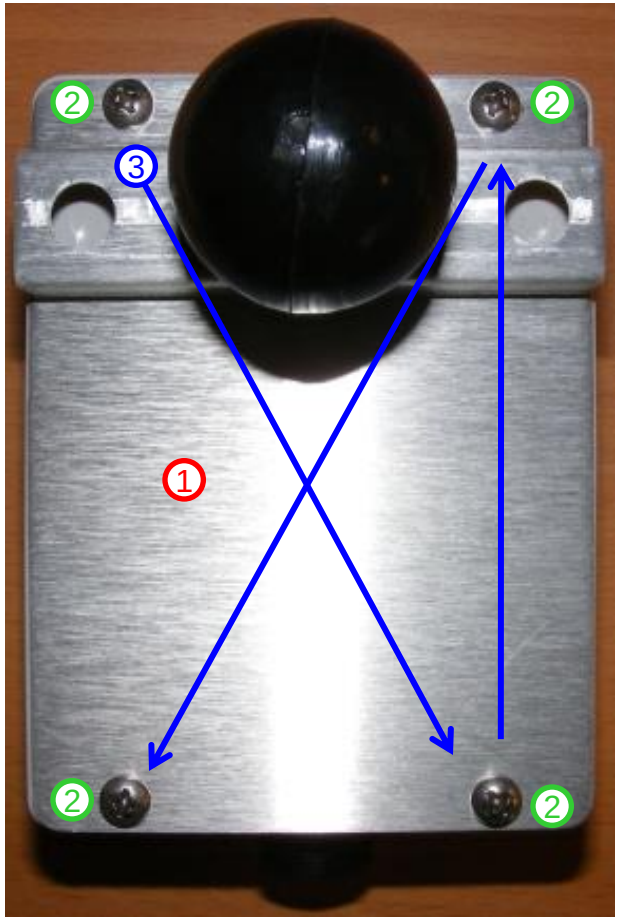
Assembly Steps	
1	Place mounting bracket assembly onto back of housing oriented as shown.
2	Assemble bracket with screws (4) and tighten 1 full turn.
3	Torque to 5”-lbs in the order shown.
4	4
5	5

Tool	Description	Qty
	7 in-lbs torque driver	1

Notes:

Ensure proper orientation of mounting bracket.

Screw Torque Requirement: 5 in-lbs



Step:	**Assembly of Mounting Bracket**
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Item	Description	Qty

Assembly Steps	
1	Perform System Test.
2	
3	
4	4
5	5

Tool	Description	Qty

Notes:

1. For SPP Radio, see APCC System Test per document P/N 121-240-030-006

   For Solar RP see TBD

Attention: Clean surfaces with alcohol based cleaner

Item	Description	Qty
360-240-015-002	Label,tamper evident	2
360-240-015-004	Label,silver,checkerbrd	1
360-240-001-013	Lbl,White Matte,1.75"x0.5",Weatherproof,Laser	1

Assembly Steps	
1	On passed units, place tamper evident label (1.5” x .75”) on each side of unit.
2	Print and adhere Model (silver) label as shown
3	Print and adhere SN label as shown
4	4
5	5

Tool	Description	Qty
	Alcohol-based cleaner	A/R

Notes:

Clean surfaces to be labeled with alcohol based cleaner to ensure adhesion

2 3 Print label per document:
APCC = 122-240-030-004
Solar RP = 122-240-020-001

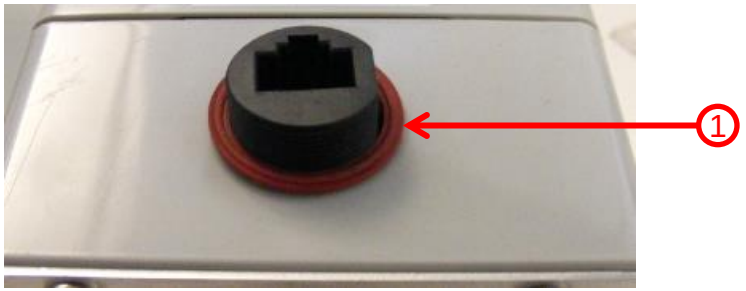
Item	Description	Qty
340-240-015-005	Gasket, red	1
330-240-015-008	Cap	1
349-240-100-001	Dielectric compound	A/R

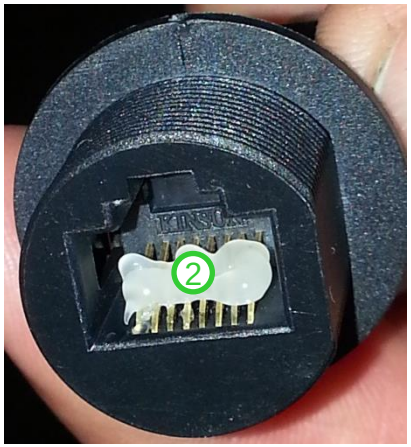
Assembly Steps	
1	Place gasket on RJ45 connector with groove side out.
2	Inject a small amount of Dielectric compound on pins of RJ45 connector as shown.
3	Assemble cap onto connector and tighten until hand tight.
4	Place completed assembly in designated area.
5	5

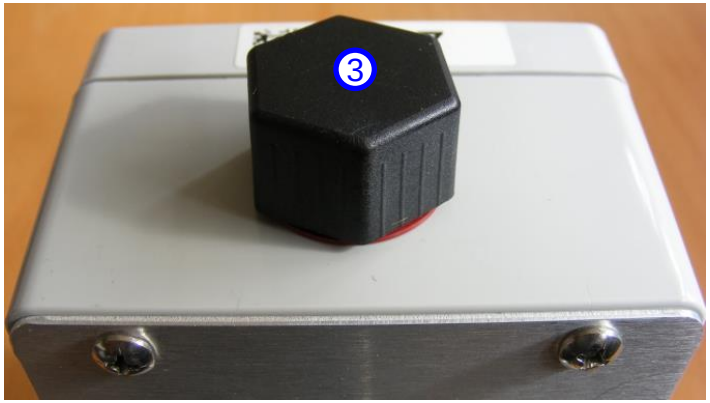
Tool	Description	Qty

Notes:

Unit is required to have passed Final Test.







Item	Description	Qty
391-240-030-010	Box,Corrugated,6"x5"x4"	1
391-240-001-008	Bag,Poly,Pink,10"x12"	1
360-240-001-010	Lbl,White Matte,4"x2"	1
961-240-015-009	Kit,Plug,RJ45	1

Assembly Steps	
1	Prepare unit for shipment.
2	Package unit.
3	Place completed assembly in designated area.
4	4
5	5

Tool	Description	Qty

Notes:

Unit is required to have passed Final Test.

Step: Packaging
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1 Prepare unit for Shipment:

1. Ensure the labels are adhered properly, legible, and accurate per 122-240-020-001.
2. Inspect the assembly and ensure the cover is properly assembled with no large gaps around perimeter. Ensure mounting bracket and ball are secured.
3. Insert unit into ESD bag with RJ45 plug kit and seal.

2 Package unit:

1. Place bagged unit into box.
2. Close lid and ensure unit is securely seated.
3. Print packaging label per document P/N 122-240-001-011. Ensure the correct information is printed on the label and adhere to left side of shipper box on left side.