

120 Volt Connections – APU Service Procedures

The Idle Free air conditioning 120-volt harness requires service to ensure proper system operation and performance. When the Idle Free APU connections are dirty or loose, the Idle Free inverter's GFCI may trip or the inverter may overload and shut down.

An overloaded inverter (shown with a red status light on the face of the inverter) may be caused by the start capacitor not engaging, which is needed to start the compressor. This typically occurs because the connectors are loose or dirty.

The Idle Free inverter's GFCI outlet may trip due to dirty connections leaking voltage back to the inverter.

Service

- APU, 120-volt air conditioner harness connections
- You will need to clean, tighten and protect all 120 volt APU connections

Connection Terminals (13 Total)

- Harness input (white to blue, neutral)
- Harness input pressure switch (drier), 2 connections (black, hot)
- Run capacitor, 5 connections
- Compressor top, 4 connections

Tools Needed

- Needle nose pliers
- Side cutters

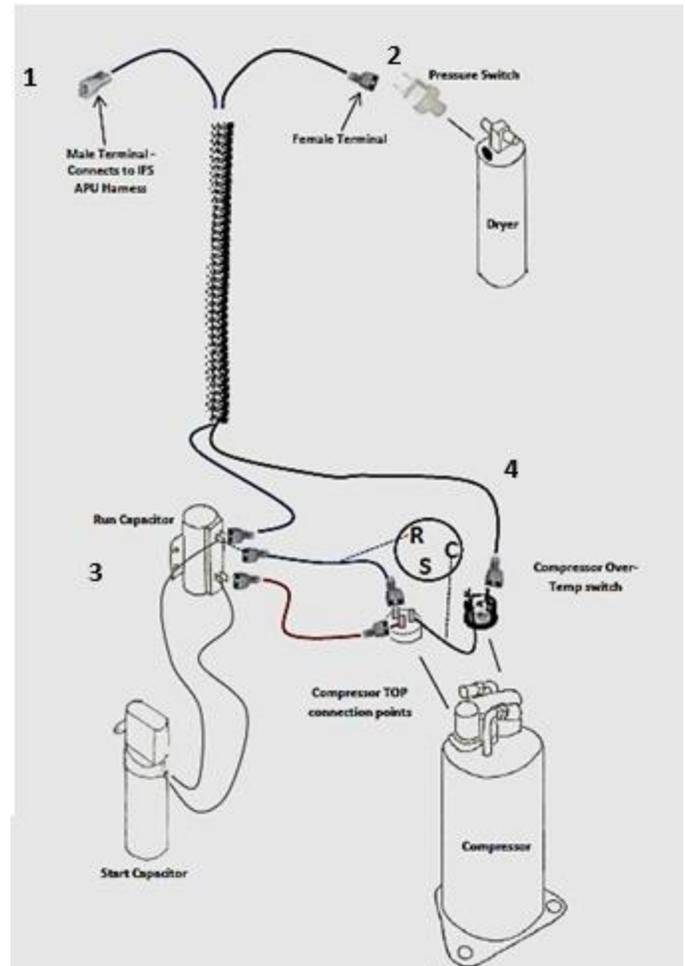


Parts Needed

- Tie-straps, narrow, 8 inch

Procedure Overview

1. The tie straps currently securing the 120 volt APU air conditioning harness need to be removed to allow all connections to be serviced.
2. All connections need to be removed, cleaned and tightened to ensure a tight fit onto the appropriate connection point.
3. All connections (cleaned and properly tightened) need to be treated with an appropriate preventative terminal protection spray.



The thermostat must be in the OFF position.

Pressure Switch Connections (2, female push-on, black wire)

1. Remove pressure switch (drier) connectors.
2. Clean pressure switch terminals.
3. Tighten crimped female push-on terminals using needle nose pliers. Tighten to near closed.
4. Return crimped and tightened terminals to the pressure switch terminals.
5. Spray pressure switch connection points with the battery terminal protection spray.

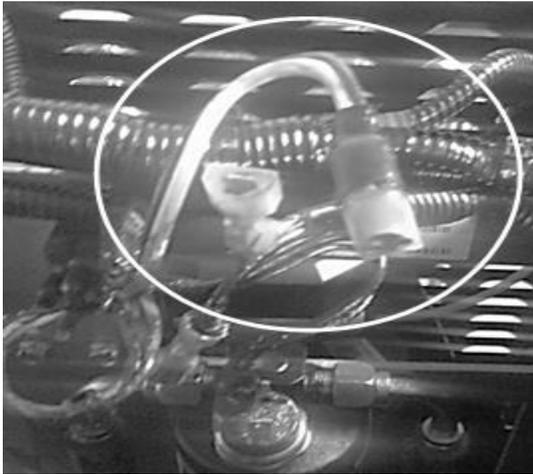


The pressure switch should look like this after the terminals are removed, cleaned, tightened, replaced and treated with battery terminal protection spray.

The thermostat must be in the OFF position.

Harness Input (White to Blue; Neutral)

1. Locate the neutral wire on the Idle Free 120-volt air conditioning harness. The neutral wires are connected in line above the drier, white wire connected to a blue wire, make pushed into female connection.
2. Clean both connector terminals.
3. Tighten female terminal using a needle nose pliers; tighten until it is nearly closed.
4. Connect crimped and tightened terminals together.
5. Spray pressure switch connection points with the battery terminal protection spray.

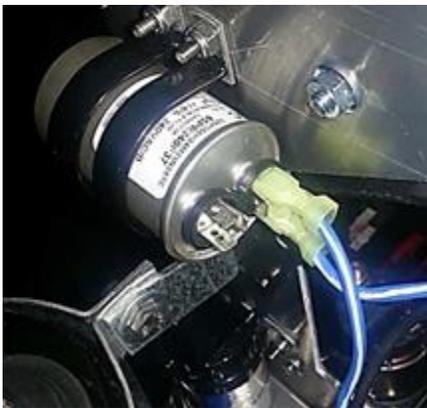


Use battery corrosion preventative spray to protect the battery.

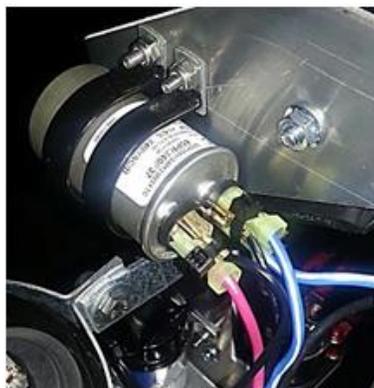


Run Capacitor – 5 Connections

1. Remove all 5 connectors from the run capacitor.
2. Clean all terminals.
3. Tighten the 2 blue female terminal wires using a needle nose pliers. Tighten it until it is nearly closed.
4. Push both blue female terminals back onto the run capacitor (aluminum frame side), on both the top and bottom posts.
5. Locate one of the 18 gauge black wires from the start capacitor, which are mounted below the run capacitor.
6. Tighten the female connector end using the needle nose pliers. **This is a critical step, do not forget to tighten the connectors.**
7. Push the female start capacitor terminal to the open post on the same side along with the 2 blue wires.
8. Place a tie-strap around these 3 connections and tighten.
9. Locate the removed red wire and the remaining black wire in the start capacitor.
10. Tighten both terminal ends, red and black wires, using the needle nose pliers.
11. Install the tightened red and black capacitor wires onto the open side of the start capacitor. Place the red wire onto the lower post and the black wire onto the upper post. The side post will not receive a terminal.
12. Place a tie strap around the red and black wire. Tighten the tie strap.
13. Spray the run capacitor connection points with the battery terminal protection spray.



Tie strap in place on the first set of run capacitor terminals. It contains two blue wires and a black wire from the start capacitor.



Run capacitor with all terminals in place. 2 tie straps are used; each set of terminals is tied separately.



Compressor Top – 4 Connections

1. Remove the screwed-on cover from the compressor top.
2. Check the tightness and cleanliness of the connections.
3. If the 4 connectors are clean and tight, do not remove them from their connection point.
4. If any one of the connections is loose, remove it and use the needle nose pliers to tighten the connector, place the tightened connector(s) back on to the appropriate terminal post.
 - Black=C
 - Red=S
 - Blue=R
5. Spray all compressor terminals with battery corrosion spray.
6. Install the cover; do not over-tighten. If the cover is cracked, replace the cover,
7. Secure all loose wires with tie straps. You are done.



Use battery corrosion preventative spray to protect the battery.

