



Service Manual

For



Rooftop RV Air Conditioner



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Warning & Safety Statement

Only trained and fully qualified technicians should test, repair or adjust vehicle refrigeration equipment. Even something as "simple" as tightening a belt can put the uniformed individual at serious personal risk.

Personal Protective Gear

When working on and around transport refrigeration units, it's important to wear protective clothing. It's important to protect yourself from battery acid, hot coolant, refrigerant s, refrigerant oils, flying dirt. debris, and noise.

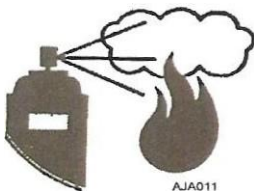


High Voltage



When working on all-electric units you may be exposed to high voltage. To work safely on this equipment, you **MUST** fully understand and follow safe electrical work practices.

Toxic Gas

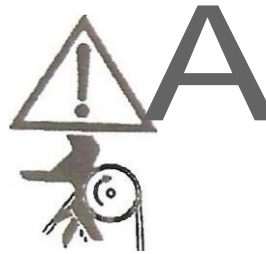


Refrigerants in the presence of an open flame produce toxic gases. These gases are severe respiratory irritants capable of causing death. Use caution when working with refrigerant in a closed or confined area with a limited air supply such as a trailer, container or hold of a ship. Refrigerant displaces air and can cause death due to suffocation.

Frostbite

Liquid refrigerant in contact with your skin will cause severe injury. Always wear eye protection and protective clothing and use extreme care when opening valves and removing caps, gauges, refrigerant lines, etc.

May Start Automatically



All-Electric units have an auto-start feature that may start the system without warning. Keep all service doors closed and guards in place when not working on the unit. Place the unit ON/OFF switch in

the OFF position and disconnect the negative battery cable before working on or near components that rotate during normal operation.

Hot Surfaces



The compressor discharge manifold, engine exhaust system, and other unit components may be extremely hot. These surfaces can cause severe burns.

Ventilation

Soldering may produce harmful gases. Make sure the area is well ventilated when soldering.

Rotating Fan

Use extreme caution when working on or around equipment having Rotating fans, pulleys and belts.



Units should be switched OFF before working on or near fans, belts and pulleys.

Steam

Removing or loosening the radiator cap of a unit that is at or above operating temperature may cause severe burns due to violent



hot water and steam emissions. Allow the cooling system to cool before loosening or removing the radiator cap or any other cooling system components.

Additional Safety Tips

Observe your shop's lock-out / tag-out requirements. Truck ignition keys must be secured and the wheels chocked.

- Use extreme caution when working on ladders and work platforms. Use ladders and/or overhead harnesses in the manner prescribed by the manufacturer of these products.
- Do not wear a wrist watch, rings, or other jewelry while working on or around equipment. These items may catch on equipment or conduct dangerous electrical current that may result in severe personal injury or death.

- Never apply heat to pressurized containers or pressurized refrigerant lines.
- Observe all safety placards on the unit and caution statements in unit documentation.
- Never operate the unit with the discharge service valve front-seated (closed).
- Be sure gauge manifold hoses are in good condition. Never let them contact belts, fans, pulleys or hot surfaces.
- Be sure all mounting bolts are the correct length for the application and are securely tightened.
- Refrigeration oil can damage eyes and cause skin irritation. Avoid prolonged contact with the skin or clothing.
- Refrigerants and refrigerant oils may be flammable or explosive under certain conditions. Use care when using any type of ignition source near refrigerant lines and components.
- Never unsolder tubing or components on a sealed and pressurized system. Always verify the refrigerant has been removed from the portion of the system being repaired. Check that service valves are mid-seated and uncapped to allow rising pressure to vent.

Cool Mode Operation

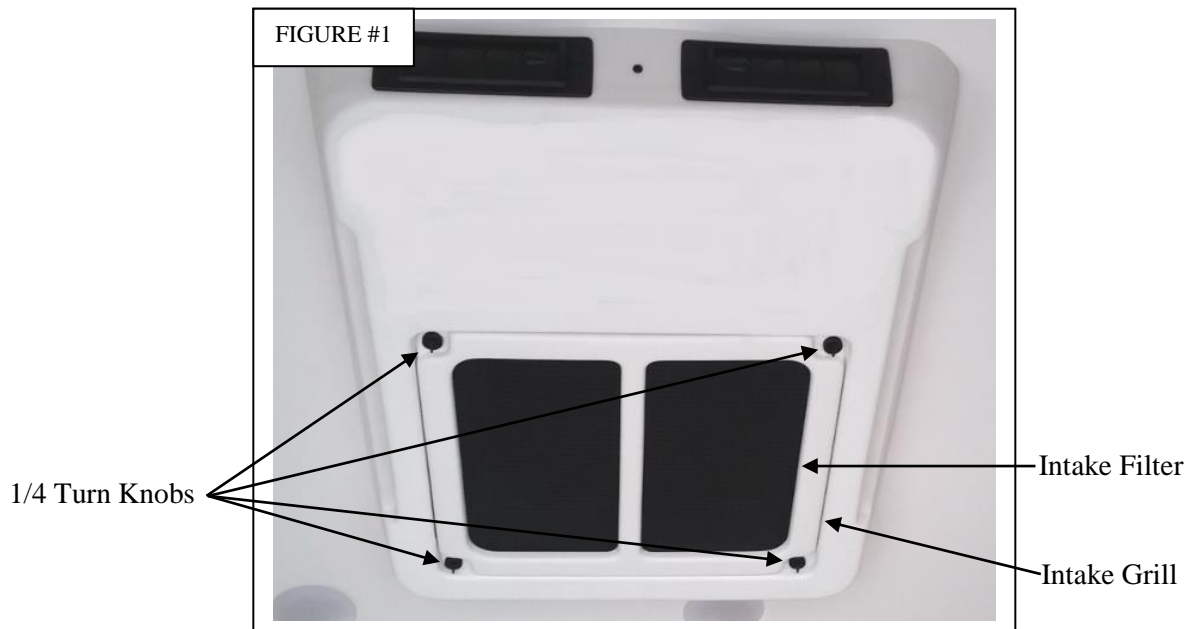
1. Select “COOL” mode to turn on air conditioning.
2. Set desired temperature on control panel.
3. Select desired blower speed with slide bar on control panel.
4. Auto mode when selected will select a fan speed depending upon the difference between the set temperature and ambient room temperature. Will control the temperature within $\pm 2^\circ$ of set point.

Maintenance

Return Air Filter Cleaning (FIGURE #1):

1. Turn system off.
2. Turn knobs counter-clockwise $\frac{1}{4}$ of turn to remove intake grill and filter.
3. Remove dirt and dust from filter with vacuum and wash filter with soap and water. Filter should be cleaned once a month during normal conditions and daily or weekly if conditions are warranted.

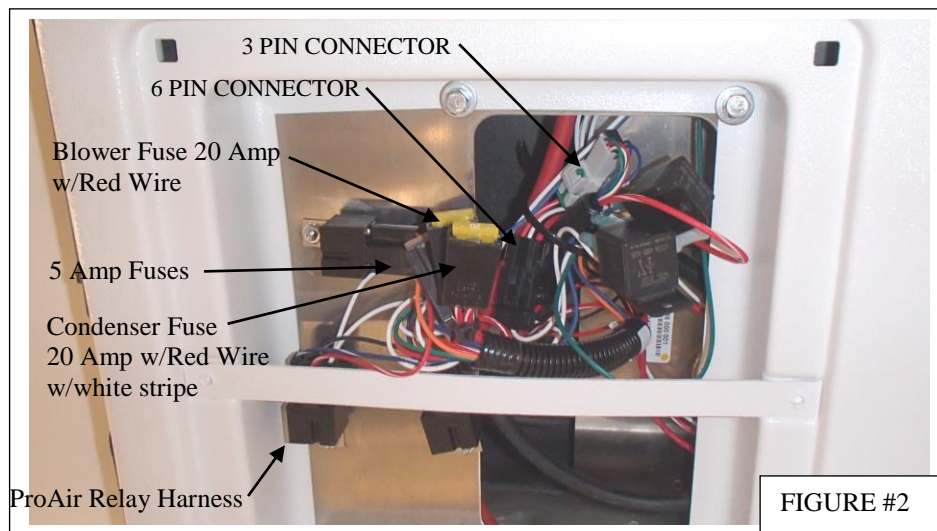
Note: Never run the air conditioner without the return air filter. Running the air conditioner without a filter may allow the evaporator coil to be plugged with dirt which will affect the performance of the air conditioner.



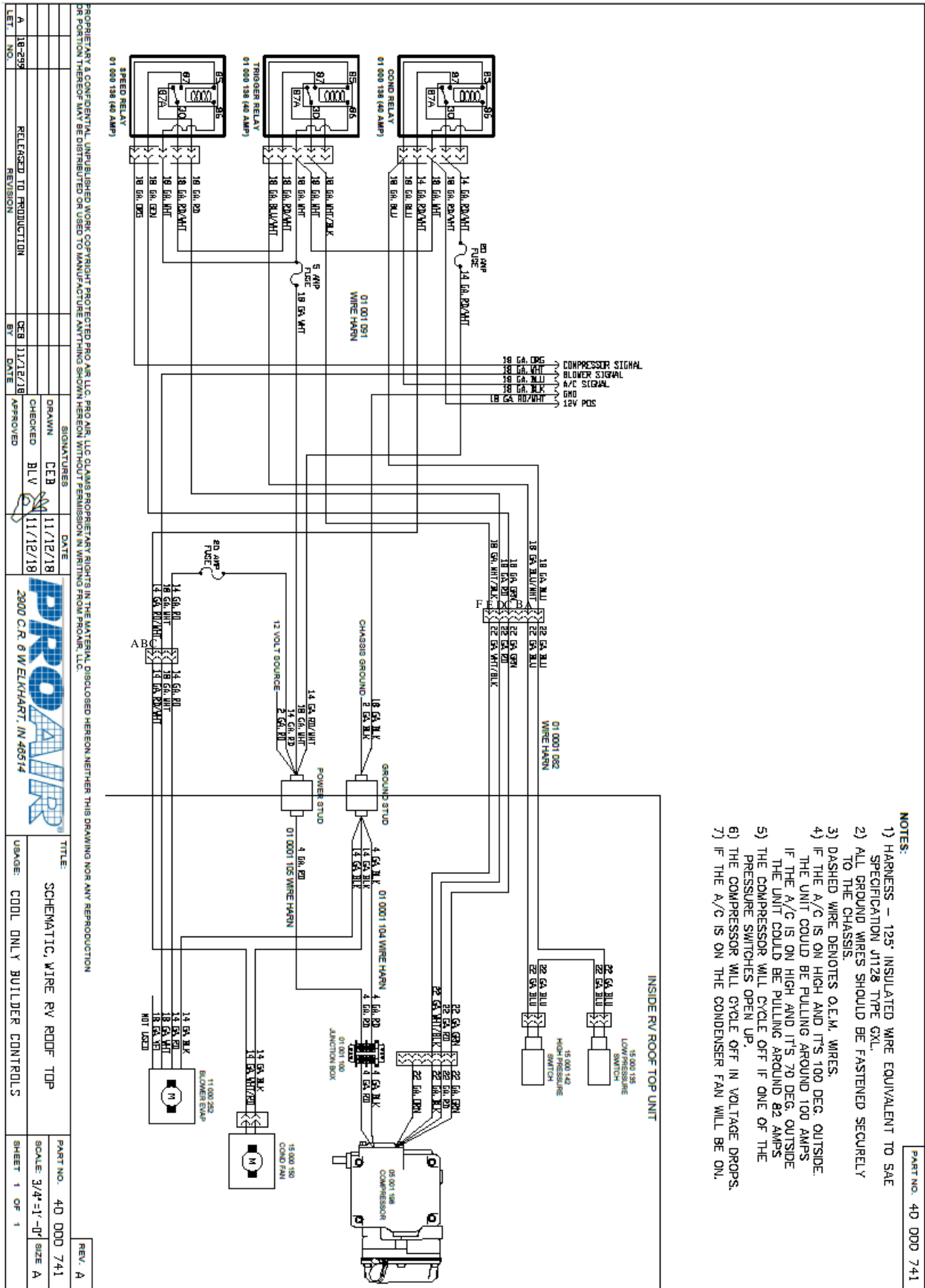
Condenser Coil Cleaning: It is recommended that you clean the condenser and fins every year with soapy or non-acid coil cleaning liquid in normal conditions or more frequently in extreme conditions to maintain the efficiency of your RV air conditioner. Eventually, if not cleaned properly the condenser fins may become clogged with dirt and dust. **Do not use high pressure water or steam to clean condenser fins.**

TROUBLESHOOTING CHART

Symptom	Probable Solution
UNIT WILL NOT TURN ON	<ol style="list-style-type: none"> 1. Make sure vehicles master switch is on. 2. Check to make sure connections are tight at POS and GROUND studs at evaporator base. 3. Check for 12 volts at POS stud and ground at GROUND studs on evaporator base.
EVAPORATOR BLOWER INOP	<ol style="list-style-type: none"> 1. Make sure control panel is ON and calling for a desired fan speed. 2. Check for blown 5 AMP fuse and 20 AMP blower fuse (FIGURE #2) behind return air filter. 3. Check for 12 volts and ground at studs on evaporator base. 4. Check harnesses to ensure wires going in and out of connectors match and are inserted into connectors correctly. 5. Check to make sure connectors are plugged into mating connectors correctly. 6. Contact ProAir for service options.
UNIT NOT COOLING, CONDENSER FAN AND COMPRESSOR <u>NOT</u> RUNNING	<ol style="list-style-type: none"> 1. Check to make sure control panel is in COOL mode. 2. Set desired thermostat temperature on controller below inside ambient temperature. 3. Check for blown 20 AMP condenser fuse (FIGURE #2) behind return air filter. 4. Check harnesses to ensure wires going in and out of connectors match and are inserted into connectors correctly. 5. Check to make sure connectors are plugged into mating connectors correctly. 6. Contact ProAir for service options.
UNIT NOT COOLING, CONDENSER FAN RUNNING, COMPRESSOR <u>NOT</u> RUNNING	<ol style="list-style-type: none"> 1. Check for blown 5 AMP fuse (FIGURE #2) behind return air filter. 2. Check harnesses to ensure wires going in and out of connectors match and are inserted into connectors correctly. 3. Check to make sure connectors are plugged into mating connectors correctly. 4. Contact ProAir for service options.



PRODUCT: 12v Rooftop RV Operation & Service Manual
 RELEASE DATE: 1/4/19
 REVISION DATE: 1/4/19, Rev. A
 PART NUMBER: 09 000 545



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PART NUMBER: 09 000 545



UNIT SPECS

OIL: 100cc PVE
 CHARGE: 2lbs R-134A
 AMPS: SYSTEM MUST BE SUPPLIED 100amp @ 12 VOLT D.C.

PARTS LIST - 50 001 911		
ITEM	QTY	DESCRIPTION
1	10	02 000 228 WASHER, 1/4 EXT TOOTH SS
2	10	02 000 380 BOLT, 1/4-20 x 3/4 SS
3	10	02 000 381 WASHER, 1/4 FLAT SS
4	1	07 000 784 COVER, RT RV BLACK
5	1	36 000 001 ELEC PAK, 12V RT CO

PROAIR
 2900 COUNTY RD 6 W ELKHART, IN 46514

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SIGNATURES DRAWN: CEB CHECKED: RAI APPROVED: [Signature]	DATE 7/30/18 11/12/18	REV. C PART NO. 50 001 911 SCALE: .188 : 1 SIZE: A SHEET 1 OF 3
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ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	01 001 036	STUD, JUNCTION BATTERY-BLACK
2	1	01 001 037	STUD, JUNCTION BATTERY-RED
3	1	01 001 082	HAIRNESS, 12V RV RT
4	1	01 001 091	HAIRNESS, RELAY BRUSHLESS BLOWER
5	1	01 001 100	JUNCTION BOX, BRUSHLESS COMP
6	1	01 001 104	WIRE, 4 GA BLACK GND
7	1	01 001 105	WIRE, 4 GA RED POWER
8	6	02 000 021	CLAMP, DR HOSE 7/8"
9	6	02 000 045	WASHER, 3/16 SPLIT LOCK ZINC
10	2	02 000 053	GROMMET, 1" HOSE 1.25" O.D.
11	8	02 000 096	RIVET, 3/16 x 9/32
12	39	02 000 115	NUT, 10-24 HEX ZINC
13	8	02 000 228	WASHER, 1/4 EXT T00TH SS
14	2	02 000 249	NUT, 5/16-18 NYLON LOCK
15	4	02 000 254	WASHER, 5/16 FLAT SS
16	4	02 000 269	RETAINER, 5/16-18 NUT
17	8	02 000 380	BOLT, 1/4-20 x 3/4 SS
18	10	02 000 381	WASHER, 1/4 FLAT SS
19	18	02 000 418	SCREW, 10d/12 HER WSHR TYPE AB
20	8	02 000 453	NUT, 10-24 NYLON LOCK
21	2	02 000 457	GROMMET, 1" O.D. HOSE
22	8	02 000 492	BOLT, 10-24 x 3/4 HER WSHR SS
23	4	02 000 531	NUT, 1/4-20 NYLON LOCK SS
24	1	02 000 537	WASHER, 1/4 LOCK ZINC
25	6	02 000 585	NUT, COUPLING 8-32, 3/4 x 1/4
26	4	02 000 599	SCREEN, 10-24 x 3/8 BLK TYP 23 T
27	1	02 000 667	LINESTAKE, 1.5" VINYL COATED
28	2	02 000 669	BOLT, 5/16-18 x 4-1/2 HEX
29	4	02 000 729	NUT CAGE 1/4-20, .025 TO .063
30	10	02 000 731	NUT CAGE 1/4-20, .093 TO .126
31	4	02 000 733	RETAINER, 2 1/2" SS
32	1	02 000 742	BOLT, 6mm x 1.0 x 49mm
33	4	02 000 788	MOUNT, RUBBER W/1/4-20 STUD, 1F
34	1	03 000 187	COIL, COND 14 x 22 H/C/TIE
35	1	03 000 266	COIL, A/C RV RT
36	85FT	04 000 007	HOSE, DRAIN 1/2" CLEAR
37	1	04 000 151	TUBE, #6 x #6 16mm
38	4	05 000 017	ELL, 1/2 DRAIN
39	1	05 000 244	DRER, IN-LINE 2.5"
40	1	05 000 458	VALVE, EXPAV FK 1.0 TON O-RING
41	1	05 000 671	FITTING, COND FORD SLIM LINE #8
42	1	05 001 196	COMPRESSOR, 12V BENLING
43	1	05 001 246	BLCK FTS, 90° #10 MID RSDO COMP
44	2	05 001 340	VALVE, CHECK 1/2 DRAIN 0.9PSI
45	1	06 001 146	BRACKET, DRIER BOTTLE
46	2	06 001 865	BRKT, COMP MOUNT
47	1	06 002 033	SHROUD, 14" FAN MOUNT
48	1	06 002 046	BRKT, RIGHT SIDE MOUNT COND
49	1	06 002 047	BRKT, LEFT SIDE MOUNT COND
50	1	06 002 073	PLATE, MAIN COND MOUNT
51	1	06 002 074	BASE, INTAKE
52	1	06 002 075	BACK, INTAKE
53	2	06 002 076	BRKT, EVAP COVER SHORT
54	2	06 002 077	BRKT, EVAP COVER LONG
55	1	06 002 078	PLATE, PASS THROUGH
56	1	06 002 079	BRKT, EVAP COVER BACK
57	1	07 000 772	PAIN, DRAIN
58	1	07 000 773	COVER, EVAP
59	1	07 000 778	PLATE, DRAIN PAN

ITEM	QTY	PART NUMBER	DESCRIPTION
60	2	08 000 006	O-RING, #10 1/2
61	3	08 000 008	O-RING, #8 13/32
62	4	08 000 009	O-RING, #6 5/16
63	1	08 000 156	WASHER, SEALING 07 FORD SLIM LI
64	1	08 000 157	O-RING, 07 FORD SLIM LINER/CTI
65	1	08 000 158	WASHER, SEALING 07 FORD SLIM
66	1	08 000 159	O-RING, 07 FORD SLIM
67	3	08 000 299	FILTER, 12.25 x 6.000 WASHABLE
68	1	15 000 113	BLUM, 9PCL 12V BRSHLS AMALOG
69	1	15 000 135	SWITCH, LOW PRESSURE 10 W/CONNECTOR
70	1	15 000 142	SWITCH, HIGH PRESSURE 220 W/CONNECTOR
71	1	15 000 150	PAN, 13" AXIAL ROLLER W/IMP
72	1	62 001 245	HOSE ASSY, #6 RVRT
73	1	62 001 246	HOSE ASSY, #8 RVRT
74	1	62 001 247	HOSE ASSY, #10 RVRT

PART NO. 50 001 911

RAFTER SUPPORTED BY CROSS BEAMS ARE NEEDED SO HVAC WILL NOT COLLAPSE ROOF WHEN BOLTING DOWN UNIT OR DRIVING DOWN THE ROAD

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C	18-299	UPDATE COIL AND DRAINS	CEB	11/12/18	7/30/18		
B	18-204	ADD JUNCTION BOX	CEB	8/13/18			
A	18-098	RELEASED TO PRODUCTION	CEB	7/30/18	11/12/18		
REV.	NO.	REVISION	BY	DATE	DATE		

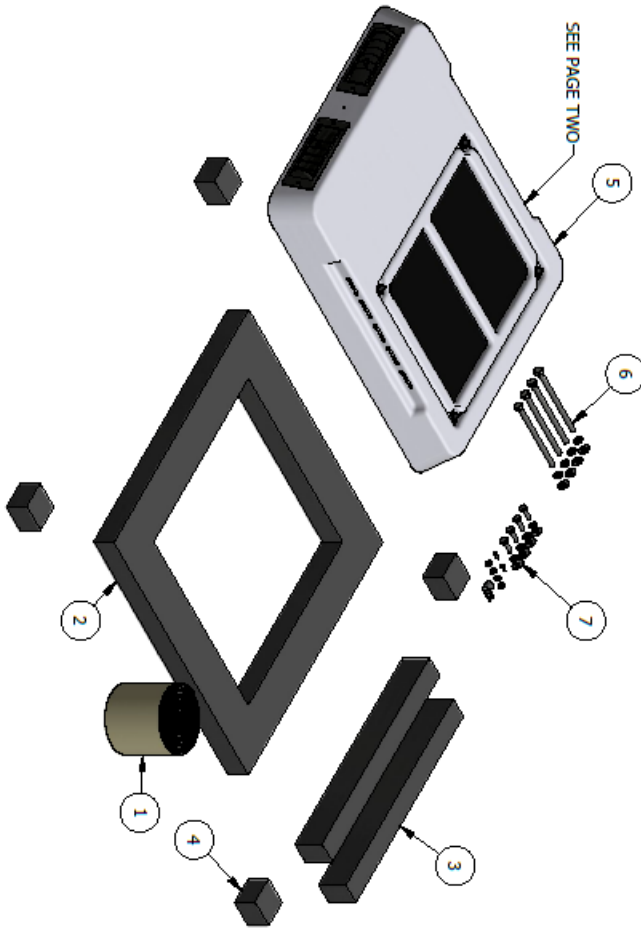
2900 COUNTY RD 6 W ELKHART, IN 46514

12V RT BLACK COOL ONLY
RV RT

PART NO.	50 001 911	SCALE:	.15 : 1	SIZE	A
SHEET	3	OF	3	REV.	C

PARTS LIST - 52 001 125

ITEM	QTY	PART NUMBER	DESCRIPTION
1	5,000'	08 000 001	FOAM, 125" x 4"
2	1	08 000 295	GASKET, MAIN SEAL
3	2	08 000 296	FOAM, SEAL PASS THROUGH
4	4	08 000 297	BLOCK, FOAM
5	1	60 001 721	PLENUM ASSY, 12V RT W/O TSTAT WHITE
6	1	63 001 541	HARDWARE BAG, ROOF TOP MOUNT
7	1	63 001 542	HARDWARE BAG, RT PLENUM MOUNT



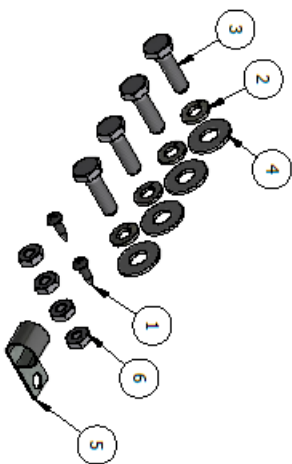
PARTS LIST - 63 001 541

ITEM	QTY	PART NUMBER	DESCRIPTION
1	4	02 000 264	WASHER, 5/16 FLAT SS
2	4	02 000 282	WASHER, 5/16 SPLIT LOCK SS
3	4	02 000 289	BOLT, 5/16-18 X 5.000 HEX HD FT



PARTS LIST - 63 001 542

ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	02 000 037	SCREW, 6 X 1/2 PH PHIL. BLK
2	4	02 000 537	WASHER, 1/4 LOCK ZINC
3	4	02 000 448	BOLT, 1/4-20 X 7/8
4	4	02 000 043	WASHER, 1/4 FLAT ZINC
5	1	02 000 203	LINESTAKE, 1/2" I.D.
6	4	02 000 115	NUT, 10-24 HEX ZINC



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REV.	NO.	DESCRIPTION	BY	DATE	APPROVED
A	18-088	RELEASED TO PRODUCTION	CEB	7/26/18	
		REVISION			

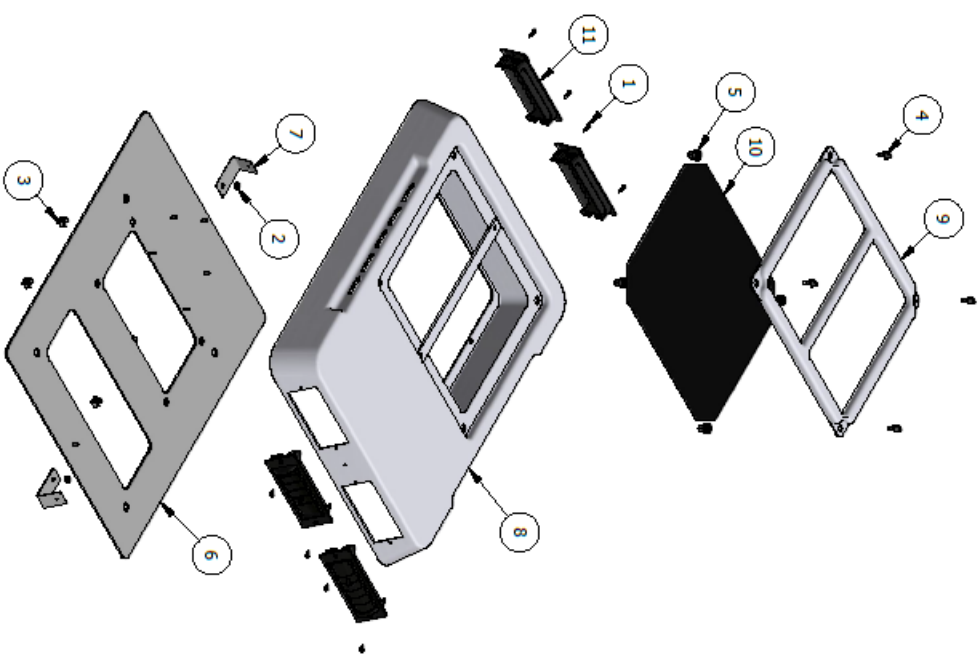
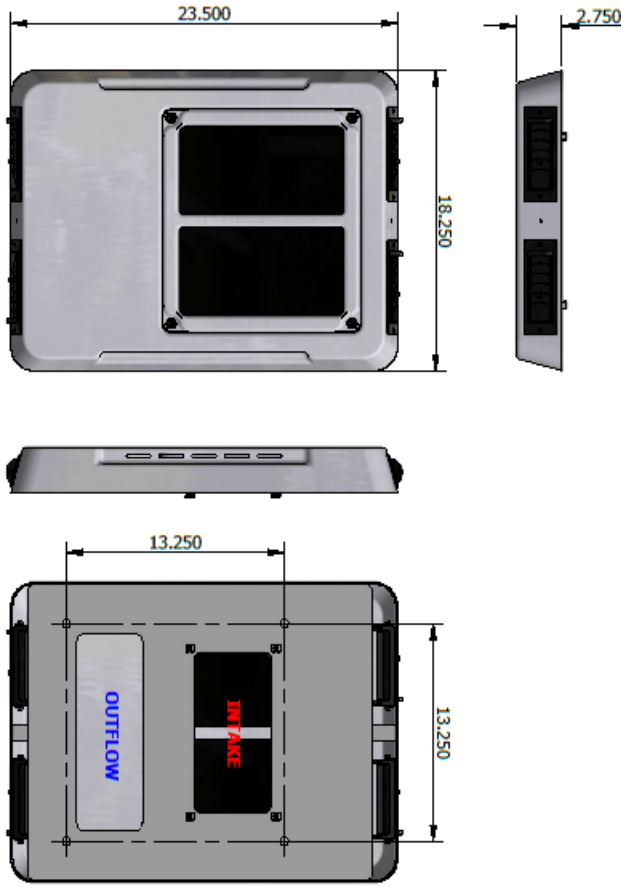
DESIGN	CHECKED	DATE
CEB	BLV	7/26/18

TITLE:	USAGE:	RV RT
PLENUM KIT, W/O TSTAT WHITE		

PART NO.	SCALE:	SIZE
52 001 125	.2 : 1	A

SHEET	OF
1	2

ITEM		QTY	PART NUMBER	DESCRIPTION
1	8	02 000 037	SCREW, 6 x 1/2 PH PHIL BLK	
2	2	02 000 115	NUT, 10-24 HEX ZINC	
3	4	02 000 731	NUT, CAGE 1/4-20, .093 to .126	
4	4	02 000 773	INSERT, QUARTER TURN	
5	4	02 000 774	RECEPTACLE, QUARTER TURN	
6	1	06 002 080	BRKT, CEILING MOUNT	
7	2	06 002 081	PLENUM, BRKT MOUNT	
8	1	07 000 790	PLENUM, RV RT W/O TSTAT WHITE	
9	1	07 000 786	GRILL, INTAKE WHITE	
10	1	08 000 298	FILTER, 13.25 x 8.25 WASHABLE	
11	4	11 000 209	LOUVER, RECT 2 x 5 3/4 W/INTG HOLE	



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DESIGN		SIGNATURES		DATE		 2900 COUNTY RD 6 W ELKHART, IN 46514	TITLE:		PART NO. 52 001 125 SCALE: 2 : 1 SIZE A
A	18-086	RELEASED TO PRODUCTION	CEB	7/26/18	APPROVED		BLV	7/26/18	
REV.	NO.	REVISION	BY	DATE	APPROVED			RV RT	SHEET 2 OF 2

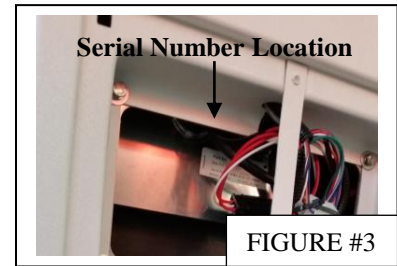
PART NO. 52 001 125

Warranty Registration

Warranty registration for new product is available on our website or by telephone.

Web address: www.proairllc.com
Click on owner registration icon.

Phone: 1-574-264-5494 and ask for Customer Service



Warranty Procedures

1. Prior to starting warranty work, the repair facility must contact ProAir by calling 574 264 5494 or 800 338 8544, asking for the customer service department or by faxing the Warranty Checklist. **See ProAir Checklist on page 14.** The following information is required: ProAir serial number and model number, vehicle identification number (VIN), mileage, retail purchase date, and retail customer's name. The ProAir serial number label (FIGURE #3) is located on the backside of the rooftop unit main plate and is visible when removing the filter from the plenum. This information is very helpful when requesting warranty parts or technical assistance.
2. Describe the problem or type of warranty repair needed. Our customer service specialists are trained on ProAir's products and can assist you in diagnosing the problem.
3. If parts are required, ProAir reserves the right to supply any and all warranty parts.
4. All warranty parts are shipped on a memo (no-charge) billing and are sent the same day if possible. An authorization number accompanies the replacement parts. Also noted on the memo billing is our labor allowance for the repair; labor allowances are based on ProAir's flat-rate standards multiplied by the repair facility's standard retail labor rate. All defective parts shall be returned to ProAir; shipping charges—by the most economical method—may be added to the cost of the repair. **No warranty claims will be paid without the return of defective parts.**
5. Warranty claims submitted to ProAir must include the following: ProAir authorization number, **ProAir serial number**, vehicle identification number, mileage, and authorized labor amount. ProAir does not pay tax or miscellaneous shop supplies. **All claims must be submitted within 30 days of the date of repair, and all parts must be returned in order to receive payment on these warranty claims.**
6. ProAir reserves the right to deny any claims without the proper documentation or claims that were for improper repairs. Service management is responsible for implementing controls to eliminate improper or unnecessary repairs and providing accurate information on the claims. This includes a complete and clear description of the vehicle's concern and required repairs.



Warranty Checklist

In an effort to expedite customer claims, ProAir requests you have the following information available when calling. Alternatively, if more convenient, you may fax the completed document to ProAir Customer Service at 574-970-0092 before calling. Haslet - Fax# 817 636 5703 York - Fax# 717 767 3658

Last eight of VIN	
Year, Make, and Model of Vehicle	
Customer or End-User Name	
Conversion Company	
ProAir Unit Model #	
ProAir Unit Serial #	
Vehicle In-Service Date	
Vehicle Mileage	
Labor Rate	
Repair Facility Address	
Contact Name and Number	
Complaint	
Cause and Correction	

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