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LITERATURE NUMBER MPD 39039

DISTRIBUTION PANEL WITH CONVERTER/CHARGER

APS MODELS: 32, 45 AND 55 AMP

ENGLISH

•Installation •Operation •Maintenance

Effective 4/10/07

SAFETY ALERT SYMBOLS

Safety Symbols alerting you to potential personal safety hazards. Obey all safety messages following these symbols.



WARNING
avoid possible injury or death



CAUTION
avoid possible injury and/or property damage

FOR YOUR SAFETY READ ALL INSTRUCTIONS BEFORE INSTALLATION AND OPERATION

INSTALLATION MUST COMPLY WITH ALL APPLICABLE STANDARDS AND CODES.

Installer: Provide these instructions to the consumer.
Consumer: Keep documents for future reference.

The Distribution Panel with Converter/Charger is a state-of-the-art APS Power System Series for recreation vehicles. The Converter/Charger is designed to convert 120 VAC to 12 VDC. This allows operation of 12 VDC devices while being connected to shore power; using power from a generator; or using power from onboard storage batteries. It also provides exceptionally clean low voltage power for charging on board batteries. This Converter/Charger is a 'switch mode' type supply. Its high frequency electronic design is maintenance free with superior performance and has an internal monitoring circuit that shuts down operation to protect the system if the internal temperature rises to unacceptable levels. Operation resumes automatically when conditions return to normal. These designs feature an internal fan for cooling and reverse battery fuses for hook-up protection.

The Converter/Charger is integrated with 120 VAC and 12 VDC Distribution Panels which allows ease of installation and centralizes all power connections. The APS-XX30 uses stab type AC breakers with five branch circuits available. See Breaker Table. The DC fuse block has individual fused branch circuits. LED's for each DC circuit light, to indicate a blown fuse. The APS series is ETL listed to UL458 and UL 61, and FCC approved under Class B.

INSTALLATION

1. **DISCONNECT POWER.** Disconnect the RV battery POS (+) wire at the battery before connecting the Converter/Charger.



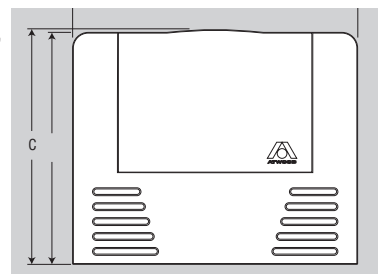
WARNING PERSONAL INJURY/PRODUCT DAMAGE

- Never store electrical devices in a compartment where flammable liquids are stored.
- Do not mount the unit in a compartment designed for the storage of batteries or flammable liquids (such as gasoline).

2. **LOCATION:** Mount on any interior surface that is out of direct exposure to weather. After installing the APS there must be front panel access. **INSIDE CABINET INSTALLATION** - the space inside of the cabinet must be large enough to allow for the dissipation of the heat created by the APS. An absolute minimum of 1" (one inch) free space from sides and back of the unit, to allow cooling air to properly flow into and out of unit. **The cabinet or other space the unit is mounted within, must be vented. The venting must provide free air flow through the cavity, thereby removing heated air. This is crucial to insure proper long term operation of the APS.**

- MOUNTING:** Flanges with holes are provided for ease of mounting using standard fasteners. Surface must support the converter's weight (9 lbs) during vehicle operation.
- ELECTRICAL REQUIREMENTS:** 120 VAC 30 AMP source to supply power. Electrical consideration should also be given to mounting near the locations of the RV batteries and the 12-volt distribution panel to minimize wiring lengths.
- ELECTRICAL CONNECTIONS 120 VAC:** Be sure to tighten all connections securely. A loose connection can quickly cause terminals and wires to overheat. Review unit labels for recommended terminal torque values.
 - 120 VAC Connections - Using the circuit breakers in the Distribution Panel, connect to the 120 VAC power source. The APS is designed to use a 30 amp main breaker and up to five branch breakers. See Circuit Breakers Chart and 30 AMP Wiring Diagram.
 - 12 VDC It is important to use the correct wire gauge for the specific model selected. As an example the APS-3230 is a 32 amp Converter/Charger which would require a 10 AWG wire.
 - The positive wire from the battery is connected to the fuse block terminal marked POS.
- NEGATIVE CONNECTION:** The negative wire from the battery is connected to the negative terminal bar located on the back of the unit (see wiring diagram). Note: If the battery connections are reversed then the "Reverse Battery" fuses will blow.
 - The APS converter/charger section is current limiting by design and therefore the output wiring does not require over-current protection.
 - The 12 VDC distribution provides fused circuits. Always replace blown fuses with the same value fuse.
- ELECTRICAL CONNECTIONS 240 VAC:** The APS-5550 is designed to accommodate 240 VAC 50 Amp 2-phase source power. The model APS-5550 uses stab type AC breakers for main and branch breaker circuits. Two (2) branch circuits are allowed per phase of incoming AC. See Circuit Breakers Chart and 50 AMP AC Wiring Diagram.
- TEST:** Energize the converter circuit. To test for proper output power, using a multimeter, measure output voltage from the positive and negative terminals with no load on the converter (all DC fuses removed) voltage should read 13.6 +/-0.2VDC. Turn on a load to about 2/3 of the rated capacity of the converter. Recheck voltage, which should remain approximately the same as at no load.
- BATTERY:** Reconnect the positive terminal to a known good battery. With the converter energized, measure the voltage at the converter and at the battery. The voltage should be about the same in both locations. As with any battery it is important that the fluid level be checked on a regular basis. When continuously connected to any charging source all batteries will "Gas" and lose some fluid.
- HI-POT TESTING:** RV Manufacturing Facilities Only. Do not Hi-Pot DC wiring with the Converter/Charger connected to the RV wiring.

APS - FRONT VIEW



POSSIBLE CIRCUIT BREAKERS FOR APS-3230, APS-4530 AND APS-5530 - 30 AMPS AC MAIN

Vendor	Main P/N	Qty	Branch P/N	Qty	Configuration 120VAC Main 30 AMP with
Square-D	HOM130	1	HOM120	2	two 20 Amp branch
Square-D	HOM130	1	HOMT2020	2	four 20 Amp branch
Square-D	HOMT3020	1	HOMT120	2	three 20 Amp branch
Square-D	HOMT2020	2	HOMT2020	2	five 20 Amp branch
Siemens	Q130	1	Q120	2	two 20 Amp branch
Siemens	Q130	1	Q2020	2	four 20 Amp branch
Siemens	Q3020	1	Q120	2	three 20 Amp branch
Siemens	Q3020	1	Q2020	2	five 20 Amp branch
Cutler Hammer	BR130	1	BR120	2	two 20 Amp branch
Cutler Hammer	BR130	1	BD2020	2	four 20 Amp branch
Cutler Hammer	BD3020	1	BR120	2	three 20 Amp branch
Cutler Hammer	BD3020	2	BD2020	2	five 20 Amp branch

POSSIBLE CIRCUIT BREAKERS FOR APS-5550 - 50 AMPS AC MAIN

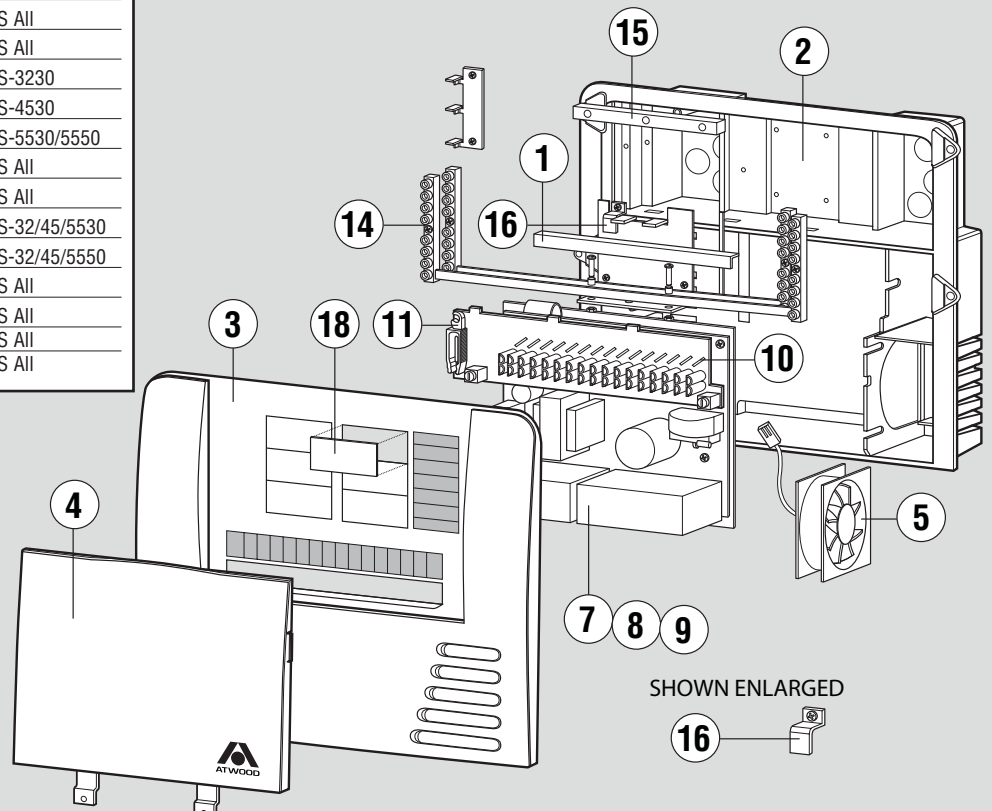
Vendor	Main P/N	Qty	Branch P/N	Qty	Configuration 240VAC Main 50 Amp per 120VAC with
Square-D	HOM250	1	HOM120	4	two 20 Amp Branch per 120VAC section. This is a total of four 20 Amp branch circuits.
Square-D	HOM250	1	HOM2020	4	four 20 Amp Branch per 120VAC section by using Tandom breakers. This is a total of eight 20 Amp branch circuits.
Siemens	Q250	1	Q120	4	two 20 Amp Branch per 120VAC section. This is a total of four 20 Amp branch circuits.
Siemens	Q250	1	Q2020	4	four 20 Amp Branch per 120VAC section by using Tandom breakers. This is a total of eight 20 Amp branch circuits.
Cutler Hammer	BR250	1	BR120	4	two 20 Amp Branch per 120VAC section. This is a total of four 20 Amp branch circuits.
Cutler Hammer	BR250	1	BR2020	4	four 20 Amp Branch per 120VAC section by using Tandom breakers. This is a total of eight 20 Amp branch circuits.

ITEM	QTY	DESCRIPTION	REFERENCE
1	1	Barrier, AC Wire Isolator	APS-5550
2	1	Converter, plastic case	APS All
3	1	Converter, plastic cover	APS All
4	1	Converter, plastic door	APS All
5	1	Fan Assembly, 12 VDC 80 x 80 x 25MM	APS All
6	1	PCBA, EMI Filter Board N/S	APS All
7	1	PCBA, Main Converter BD APS-32	APS-3230
8	1	PCBA, Main Converter BD APS-45	APS-4530
9	1	PCBA, Main Converter BD APS-55	APS-5530/5550
10	1	PCBA, Distribution Board Assembly	APS All
11	1	Puller, Fuse ATO Automotive	APS All
14	2	Terminal Bar 10 PT, 5-8MM	APS-32/45/5530
14	4	Terminal Bar 10 PT, 5-8MM	APS-32/45/5550
15	1	Terminal Bar 15 PT, 5-8MM	APS All
16	1	Breaker Hold Down	APS All
17	15	Field Wire Terminals	APS All
18	1	Filler Plate Homfp	APS All

NOTE: Different vendors of circuit breakers are not recommended.

If possible load AC Main and Branch Circuits with like vendor breaker.
Cabinet: Cutout requirements.

Optional Mounting of GR3 Transfer Switch to rear of unit.



SHOWN ENLARGED

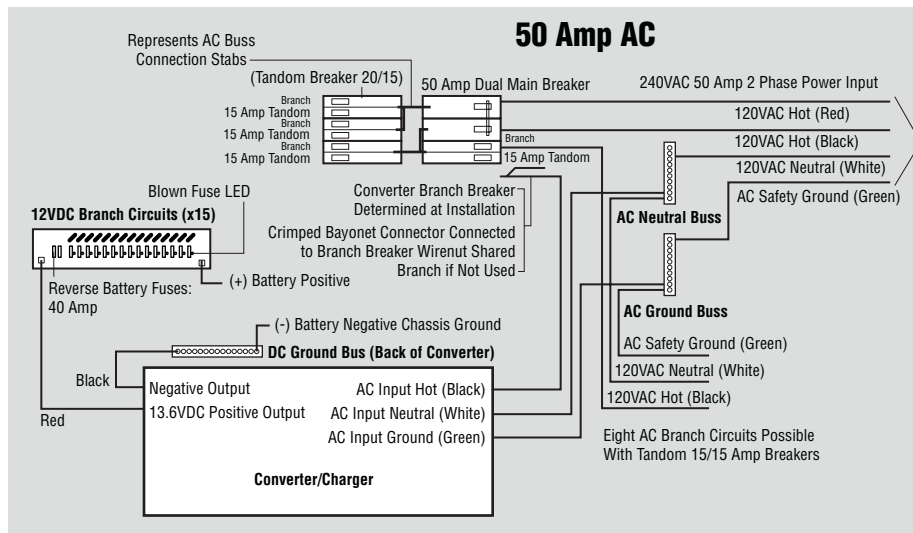
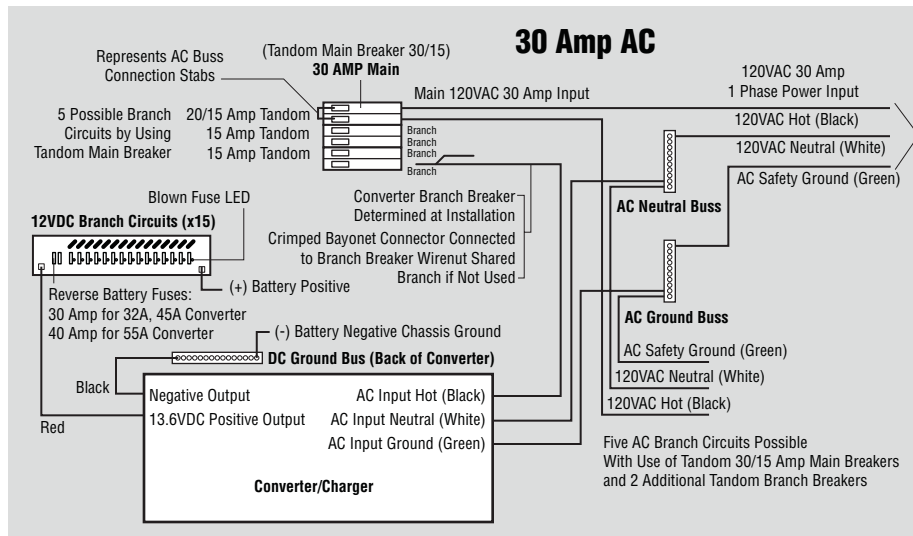
TROUBLESHOOTING

Before replacing converter perform the following checks:

1. Turn the AC circuit breaker marked converter to the OFF position.
2. Disconnect the wire from the "Positive Output Terminal".
3. Remove all of the "DC Branch Circuit" fuses.
4. Turn the AC circuit breaker marked Converter to the ON position.
5. Using a voltmeter read the DC voltage at the "Converter Positive Connection: and the "Negative Bar".
 - If the reading is greater than 13 VDC, but less than 14 VDC the converter is operating properly.

If the readings are not within the 13 VDC, but less than 14 VDC parameters follow the steps below:

PROBLEM	SOLUTION
No 12 VDC Output	120 VAC not connected to coach Converter circuit breaker in OFF position Reverse battery fuses blown Internal converter failure
Converter cycles on and off	Fan air flow inadequate Internal converter failure
Reverse Battery fuses blown	Battery leads reversed No 12VDC output
Low Output	Load excessive for rating of converter Battery has bad cells Internal converter failure



RV CONVERTER/CHARGER LIMITED WARRANTY POLICY

Atwood Mobile Products warrants to the original owner and subject to the below mentioned conditions, that this product will be free of defects in material or workmanship for a period of two years from the original date of purchase. Atwood's liability hereunder is limited to the replacement of the product, repair of the product, or replacement of the product with a reconditioned product at the discretion of Atwood Mobile Products. This warranty is void if the product has been damaged by accident, unreasonable use, neglect, tampering or other causes not arising from defects in material workmanship. This warranty extends to the original owner of the product only and is subject to the following conditions:

1. For two years from the date of the original purchase Atwood warrants that this product will be free of defects in material and workmanship with the exceptions noted below. This warranty includes reasonable labor charges required to remove and replace the part. Service calls to the customer's location are not considered part of these charges and are therefore the responsibility of the owner.
2. This warranty does not cover the following items classified as normal maintenance and/or customer damage.
 - The owner is not the original owner of the converter.
 - Atwood was not notified of the claim during the warranty period (2 years, from Date of Purchase).
 - Any wiring alterations to the unit.
 - Any product that has had the date code or serial number altered, defaced or removed.
 - Defacing the chassis by writing on it with markers.
 - Malice or neglect that resulted in metal damage to the unit.
 - Shipping damage occurs due to improper packaging of the unit.
 - Any act of God. (i.e. lightning damage).
3. In the event of warranty claim the owner must contact in advance either an authorized Atwood Service Station or the Atwood Service Department. Warranty claim service must be performed at an authorized Atwood

Service Station (a list will be provided at no charge) or as approved by the Atwood Service Department Atwood Mobile Products, 1120 North Main St, Elkhart, Indiana 46514 USA. Phone 866-869-3118.

4. Return parts must be shipped to Atwood Mobile Products "prepaid". Credit for shipping costs will be included with the warranty claim. The defective parts become the property of Atwood Mobile Products and must be returned to the Consumer Service Department, Atwood Mobile Products, Salt Lake Operations, 1874 South Pioneer Road Salt Lake City, UT 84104 USA.
5. This warranty applies only if the unit is installed according to the installation instructions provided and complies with local and state codes.
6. The warranty on replacement parts is the unused portion of the original warranty period.
7. Damage or failure resulting from misuse (including failure to seek proper repair service) misapplication, alterations or water damage are the owner's responsibility.
8. Atwood does not assume responsibility for any loss of use of vehicle, loss of time, inconvenience, expense for gasoline, telephone, travel, lodging, loss or damage to personal property or revenues. Some States do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.
9. Any implied warranties are limited to two (2) years. Some States do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which may vary, from State to State.
10. Replacement parts purchased outside the original warranty carry a 90 day warranty. This includes the part at no charge and reasonable labor charges to replace it.

This Atwood product is designed for use in recreation vehicles for the purpose as stated in the 'data plate'. Any other use, unless authorized in writing by the Atwood Engineering Department, voids the warranty.