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## FICHE LOCATION                      ILLUSTRATION

1 A5 \*\*\*\*\* BATTERY CHARGER - 12 VOLT  
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## WIRING DIAGRAM SECTION

1 A3 \*\*\*\*\* BATTERY CHARGER - ASSEMBLY - 12 VOLT

The Onan SCR "float-charge" battery charger is a constant voltage, current-limiting unit protected against:

1. Accidentally reversed battery connections.
2. Shorted output leads.
3. Overload currents.

The battery charger basically consists of the cabinet with the ammeter, fuse, "ON-OFF" switch, a transformer, resistor, and the regulator-rectifier module. A cord is provided for connecting to the AC input power source and two cables with clips for battery connections. See Figure 1. Louvered sides provide convection cooling of the components.

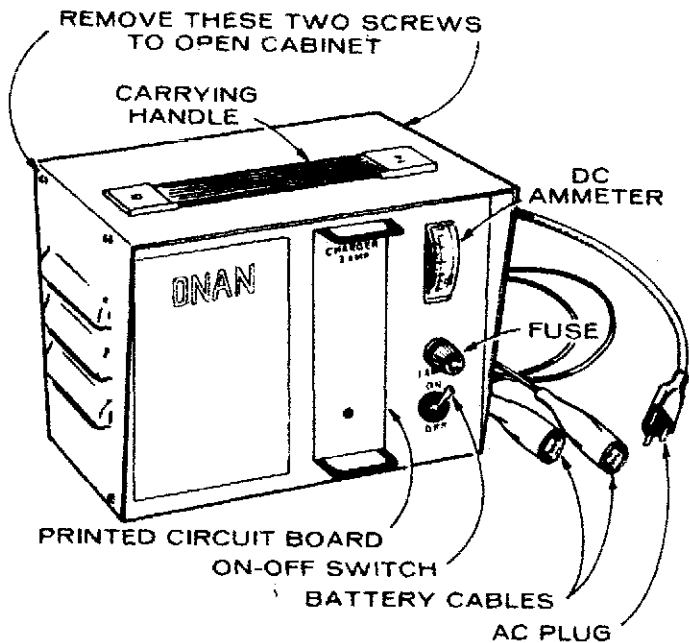


FIGURE 1.

The cabinet is a two-piece unit hinged at the lower front edge. Bottom and back form the chassis while the front panel, top and two sides form the cover. Four screws, two on each side, secure the cover and chassis together. Two screws as shown in Figure 1 can be removed to allow the cover to be tipped forward.

A carrying handle is provided for portability. If a stationary location is desired, the battery charger can be mounted. See INSTALLATION.

## SPECIFICATIONS

Input . . . . .	120 volts AC (50 or 60 H.
Output . . . . .	2 amperes DC at nominal 12 VD
Float DC voltage (adjustable) . . . . .	12.6 to 15
Regulation* . . . . .	± 2
DC ammeter . . . . .	0 to
Dimensions (in.) . . . . .	6 H x 8.5 W x 5.5
Weight (lb) . . . . .	

\* - With ±10 percent line voltage.

## INSTALLATION

The cabinet may be wall-mounted using the four mounting holes on the rear of the cabinet. To open the cabinet remove the two screws in the upper rear corners of the cabinet (Figure 1). Figure 2 shows the location of the mounting holes on the rear of the cabinet for wall mounting. Protect the battery charger from moisture, dust and dirt or high ambient temperatures (over 140°F).

Connect the red (+) clip to the positive (+) post of the battery, the black (-) clip to the negative (-) post of the battery. Plug the AC wire plug into an AC receptacle.

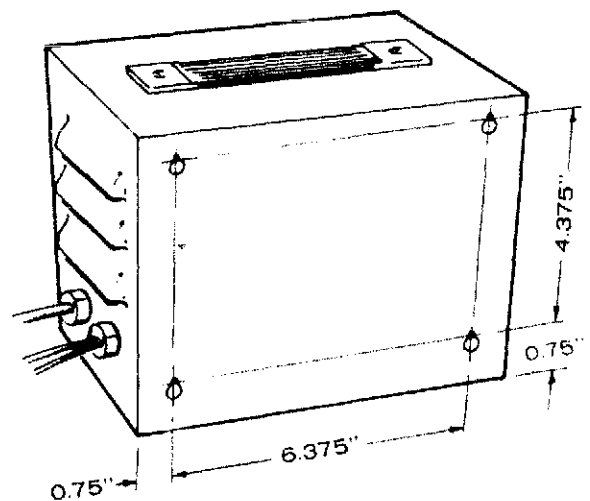


FIGURE 2.

## OPERATION

With the switch in the "ON" position, AC current passes through the fuse (F1) into the transformer (T1) where the AC voltage is stepped down to approximately 20volts. A full-wave bridge rectifier converts the lower AC voltage into pulsing DC current.

DC current enters the voltage regulation section of the battery charger. The voltage regulator turns on an SCR to charge the battery if:

1. Battery is connected correctly.
2. Battery voltage is below float voltage setting.
3. Battery voltage is above four volts.

The SCR passes the DC pulses to the ammeter and into the battery. At the end of each DC pulse, the SCR turns off. If the battery has now reached float voltage during the preceding DC pulse, the regulator will not fire the SCR on the next pulse.

When battery voltage is well below the set float voltage, the regulator turns on the SCR every pulse and output current may go up to maximum. As battery reaches float voltage, the regulator turns the SCR on less until output current reaches zero. See "Regulator Adjustment" following.

**NOTE:** This float charger is not designed to recharge batteries quickly. A discharged battery must have a minimum voltage of four volts for battery charger operation.

**Parallel Operation:** Two or more battery chargers can be paralleled to charge the same battery (for faster charging). The battery charger with the higher float voltage setting will determine the voltage of the battery.

## Regulator Adjustment:

**CAUTION** The regulator was set at the factory and does not require adjustment. If for some reason in the future the regulator needs adjusting be sure to use only the following procedure.

1. Connect the battery charger to a fully-charged battery.
2. Connect a high accuracy voltmeter (1/2 to 1 percent to the output leads.
3. Through hole in regulator-rectifier module cover turn potentiometer R3 fully clockwise.
4. Charge battery until voltage reaches 13.3 volts.
5. Turn R3 slowly counterclockwise until ammeter shows intermittent battery charging . . . one or two pulses every five seconds at float voltage

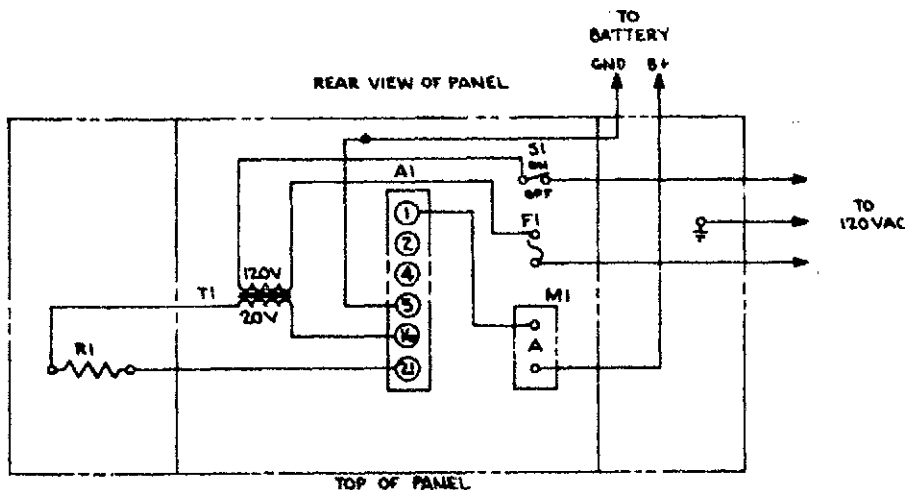
Lead acid battery -- 13.3 volts.  
10-cell nickel cadmium battery --  
14.0 to 14.5 volts.

6. Disconnect the voltmeter.

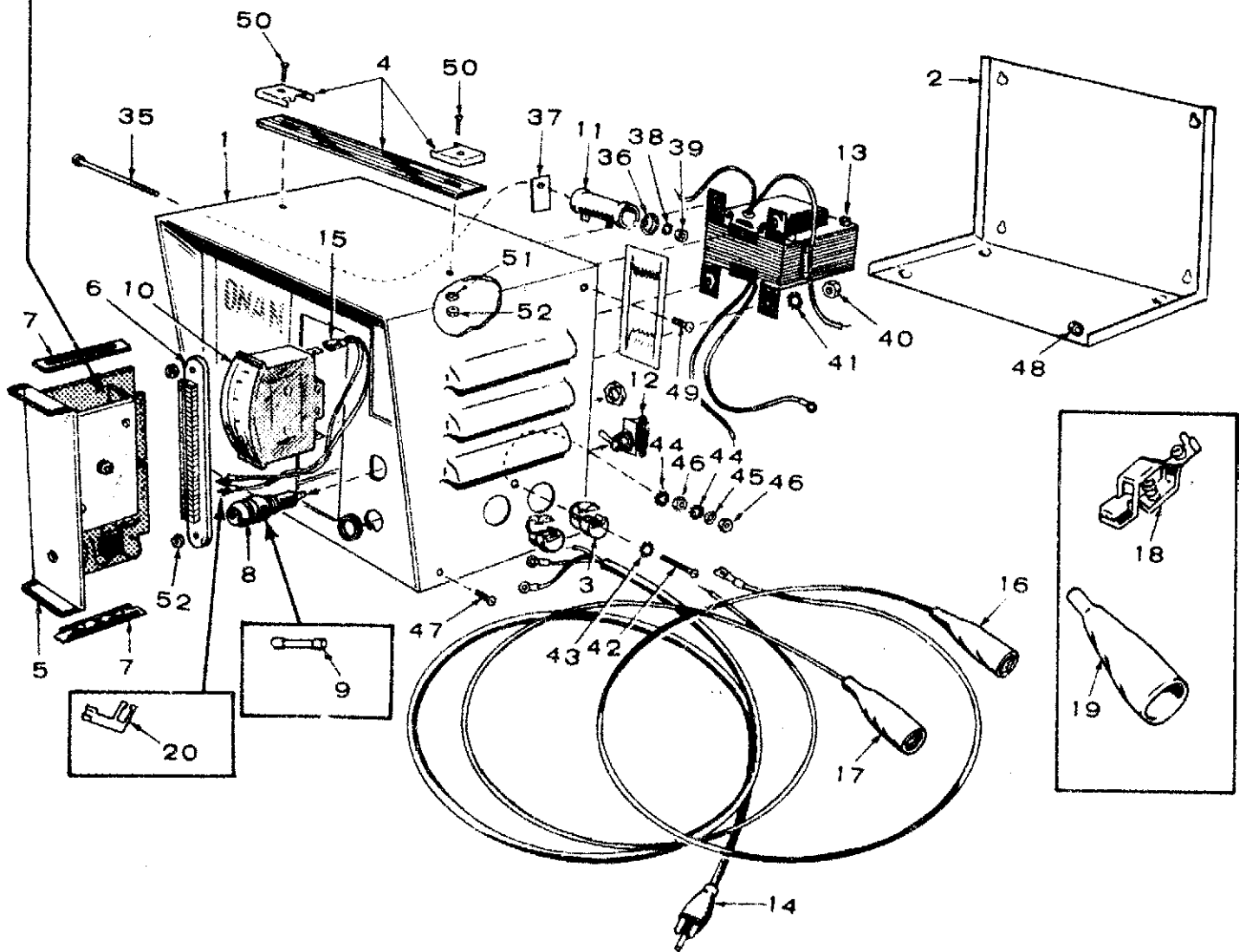
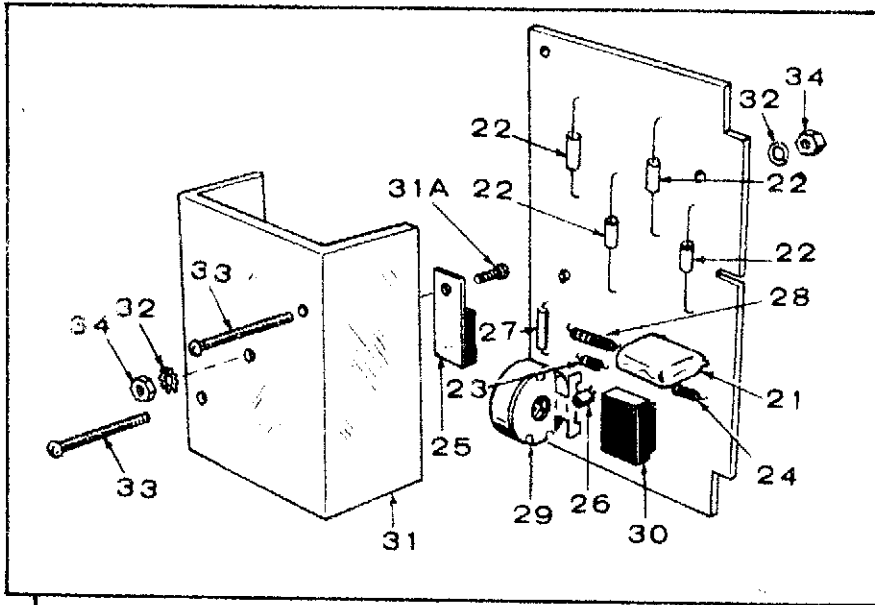
## TROUBLESHOOTING

No DC Output	
Check Switch S1 position	Must be at "ON."
Check Fuse F1	Replace if "blown."
Defective Switch S1	Replace.
Defective Transformer T1	Secondary output should be approx. 20 volts. If not, replace.
Defective regulator - rectifier module	Remove and check with new module. Replace if necessary.

## WIRING DIAGRAM



REF	DES.	QTY	DESCRIPTION
A1		1	BATTERY - CHARGER ASSY (12V)
F1		1	FUSE - 1 AMP
M1		1	AMMETER 0-7 AMP
R1		1	RESISTOR 2.5-OHM, 25W
S1		1	SWITCH - ON OFF
T1		1	TRANSFORMER



BATTERY CHARGER- 12 VOLT

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	305-513	1	Charger, Battery - Complete
1	301C3464	1	Cover
2	301C3463	1	Chassis
3	508-98	2	Insulator
4	406A361	1	Handle, Carrying (Includes End Plates)
5	300C793	1	Module Assembly, Battery Charger - 12 Volt (Includes Parts Marked *)
6	332B1271	1	Housing, PC Board
7	323P814	2	Guide, PC Board
8	321P104	1	Holder, Fuse
9	321P67	1	Fuse - 1 Amp
10	302A807	1	Ammeter, DC (0-2 Amp)
11	304A139	1	Resistor, Fixed (2.5-Ohm, 25 Watt)
12	308P321	1	Switch, Toggle
13	315B159	1	Transformer - 120 Volts, 50/60 Hertz
14	335A110	1	Cord Assembly (7 ft. x 18/3)
15	336A2095	1	Lead Assembly - PC Board Housing to Ammeter
16	336A2096	1	Lead Assembly - Positive (Includes Parts Marked +)
17	226A1087	1	Lead Assembly - Negative (Includes Parts Marked ★)
18	332P1446	2	+★Clip, Battery
19	INSULATOR, CLIP		
	332-1447	1	+Red (Positive)
	332-1448	1	★Black (Negative)
20	332-1269	As Req.	Terminal, PC Board
21	355A25	1	*Capacitor (0.1 Mfd., 100 Volt)
22	357A17	4	*Diode (3 Amp, 100 Volt)
23	357A4	1	*Diode, Blocking (400 MA, 400 Volt)
24	359A32	1	*Diode, Zener (8.2 Volt)
25	364A15	1	*SCR (Silicon Control Rectifier)
26	361A3	1	*Transistor, Unijunction
27	351A210	1	*Resistor (1500-Ohm)
28	350P550	1	*Resistor (15,000-Ohm)
29	303A179	1	*Potentiometer
30	315B368	1	*Transformer

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
31	363A56	1	*Heat Sink, SCR
31A	812-61	1	*Screw, RHM (6-32 x 3/8 ") - SCR to Heat Sink
32	*WASHER, LOCK		
	853-3	1	SCR to Heat Sink (#6)
	850-21	2	Heat Sink to PC Board (#6)
33	812-70	2	*Screw, RHM (6-32 x 1-1/4 ") - Heat Sink to PC Board
34	*NUT, HEX		
	860-6	1	SCR to Heat Sink (6-32)
	860-6	2	Heat Sink to PC Board (6-32)
35	812-91	1	Screw (8-32 x 2-1/2 ") - Resistor Mounting
36	304A15	1	Washer, Centering - Resistor
37	304A292	1	Insulator, Resistor Mounting
38	850-25	1	Washer, Lock (#8) - Resistor Mounting
39	860-8	1	Nut, Hex (8-32) - Resistor Mounting
40	860-6	4	Nut, Hex (6-32) - Transformer Mounting
41	853-3	4	Washer, Lock (#6-ET) - Transformer Mounting
42	810-8	1	Screw (8-32 x 5/8 ") - Brass - Ground Lead to Cover
43	853-5	1	Washer, Lock (#8-ET)
44	856-2	2	Washer, Lock (#8-EIT)
45	526-48	1	Washer, Flat (#8- Brass)
46	871-7	2	Nut, Hex (8-32 - Brass)
47	813-100	2	Screw (10-32 x 1/2 ") - Cover to Chassis
48	870-129	2	Nut, Nylon (10-32)
49	815-26	2	Screw (10-32 x 3/8 ") - Cover to Chassis
50	812-61	2	Screw (6-32 x 3/8 ") - Handle to Cover
51	850-20	2	Washer, Lock (#6)
52	860-6	4	Nut, Hex (6-32)

\* - Included in #300C793 Module Assembly.  
+ - Included in #336A2096 Lead Assembly.  
★ - Included in #226A1087 Lead Assembly.

1 A3 \*\*\*\*\* DATA TABLE

## STANDARD GROUPS

FICHE LOCATION	ILLUSTRATION
1 B7 *****	BATTERY CHARGER AND RUNNING LIGHT - OPTIONAL
1 A9 *****	BELL, END - BEGIN SPEC C
1 B3 *****	BELL, END - SPEC A THRU B
1 B5 *****	BOARD, PRINTED CIRCUIT - IDLE-MATIC CONTROL (300-1185)
1 B11 *****	BOX ASSEMBLY, RECEPTACLE (REMOTE) - SPEC A THRU B - OPTIONAL
1 B1 *****	BOX, RECEPTACLE - STANDARD FOR 50 HERTZ - OPTIONAL FOR 60 HERTZ - BEGIN SPEC C
1 A11 *****	BOX, RECEPTACLE - 60 HERTZ (END BELL MOUNTED) - BEGIN SPEC C
1 B9 *****	CONTROL, IDLE-MATIC - OPTIONAL
1 A3 *****	DOLLY - OPTIONAL
1 A5 *****	ENGINE AND CARRYING FRAME
1 A7 *****	GENERATOR
1 B13 *****	SERVICE KITS AND MISCELLANEOUS