



**AGM Resistance Welder  
Instruction Manual  
Model DP-150**

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Read equipment manufacturer's manual before using this product. Failure to do so can result in serious injury or death.



As is true for all types of welding equipment, serious injury may result if not properly used and maintained. Though numerous safety features are built into this welder, the users must familiarize themselves with the proper installation, usage and maintenance of the welder as outlined in this instruction manual.

In addition, the following should be observed:

1. Refer all service to qualified personnel.
2. **DO NOT** operate the welder with the cover removed.
3. **DO NOT** work with or keep welder in wet or damp areas.
4. **DO NOT** weld in the rain.
5. **DO NOT** look directly at the weld as it is taking place, as this may cause eye injury.
6. **DO NOT** touch the weld pin immediately after the weld has been made, as the pin can become very hot and may burn the skin if touched. Allow sufficient time for the pin to cool before handling it.
7. **DO NOT** weld near flammable materials or liquids, in or near areas containing explosive gases or fumes.
8. **DO** wear protective clothing when welding to prevent weld slag from contacting and burning the skin.
9. **DO** keep this manual with the welder at all times and be certain that anyone who operates the welder reads and understands this manual thoroughly.
10. **DO** wear safety glasses.
11. **DO** follow guidelines for a safe workplace.

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## FORWARD

THE AGM Model DP-150 welding system is the latest and most up to date portable resistance welder in the industry.

This AGM welding system has been carefully constructed of the finest and most reliable parts available, with all components being rigidly inspected and tested to assure long and trouble free performance.

This resistance welding system is capable of welding both straight and cupped head resistance weld pins to sheet metal duct work with a minimum of backside marking.

The DP-150 welding system incorporates features that make it inexpensive to operate and maintain. It will give excellent service over a long period of time with only ordinary care and maintenance given to all mechanical and electrical equipment.

This manual, with its illustrations, diagrams and parts lists, will provide adequate information for the operation and maintenance of the system.

If you are in need of additional application information or service, contact your AGM representative, or the AGM factory direct.

### **LIMITED WARRANTY**

No Warranty, including warranty of merchantability, express or implied, is made in connection with the sale of this machine, except that AGM Industries will repair or replace defective parts which may develop under normal and proper use of the machine during a period of ninety (90) days from the date of delivery, provided that the warranty shall not be valid if the machine has been subjected to misuse or abuse or has not been installed, adjusted, maintained, operated, or used in accordance with instructions furnished by AGM Industries, or if pins or studs other than those manufactured by AGM Industries, even though purchased from sources approved by AGM Industries, are used with it. Notice of any claim hereunder shall be given by the purchaser to AGM Industries in writing within five (5) days after the defect shall have been discovered. AGM shall have no liability for any labor or material charge or shipping cost not expressly authorized by them in writing; and in this event, their liability shall be limited as in these conditions set forth.

## DESCRIPTION OF THE WELDING SYSTEM

The AGM Model DP-150 welding system is a portable solid state resistance welder designed for welding both the 9 ga. cupped head and 14 ga. weld pins. Though the normal application is to weld these pins to galvanized sheet metal duct work of 24 ga. thickness and less, satisfactory results may be obtained on thicker base metals. This will depend on the actual thickness of the metal, whether it is galvanized and which gauge pin you are welding.

The welder is capable of welding (on a continuous basis) 8 welds per minute for the 9 ga. pin, and 12 welds per minute for the 14 ga. pin. It can weld for faster rates for short durations; however care should be taken not to exceed the continuous rate for long periods of time, otherwise damage may occur. The welder contains the necessary timing controls to work with the weld transformer to make consistently good welds each and every time.

The gun has a contoured pistol shaped handle with a trigger button and extra long cables. As a safety feature, weld current, weld current will not be present at the gun until the weld pin makes contact with the base metal. However, the operation of the weld relay and timer may be checked by actuating the gun without the pin touching the work piece. The weld on light will come on for a period of time varying from about ½ to 1 ½ seconds, depending on where the weld time control is set for.

When used with AGM resistance weld pins, this system is an exceedingly valuable tool and is suited for most commercial duct liner applications.

## Specifications

Input Voltage - 208-230 Volts AC, 60 Hz, single phase, 30 Amp

Line Cord - 7 feet of 12/3 cord, terminating in a 4 - prong 208 volt, 30 Amp twist - lock plug. (Connections to ground, X and Y)

Ground Lead - 2 ½ feet of 4/0 weld cable, Terminating in a spring loaded clamp.

Gun Lead - 10 ½ feet of 3/0 weld cable and 18/2 control cable.

Dimensions - 16" L x 9-1/2" W x 7-1/4" H 16 ga steel chassis.

Weight - 65 Lbs. (including gun and cables)

Weldable base metal - Designed for 24 ga. & thinner, but test have proven good results have been achieved on 1/4 "material.

Weld Rate - 8 - 12 welds/minute. Faster rates are possible for short periods.

Gun Type- Pistol Grip

Gun Weight (less cables) - 1.6 lbs. (0.73kg)

Gun Dimensions- 5-1/4" (133.4mm x 2" (0.73mm) Diam.

Gun feed - Manual

## INSTALLATION AND OPERATING INSTRUCTIONS

### Installation

The unit is designed to operate on a nominal 208 - 220 volt AC, 30 Amp line. However, by moving a single wire on the large terminal strip, it can be operated on a 230 - 240 volt line, or a low 208 volt line. For optimum performance, the connections should be made as follows.

<u>Line Voltage</u>	<u>Connect wire 20 to Tap</u>
190 - 208	2
208 -220	3
230 - 240	4

### **NOTICE**

*The unit is wired at the factory for 208 - 220 volt operation.*

A 4 wire, 3 phase plug is used on the line cord, with connections made to the ground, X and Y pins. Though the welder is single phase, this plug allows it to be connected to a 3 phase receptacle, as is commonly found in shops.

### Operation

Install the magnetic head into the end of the gun and tighten the two set screws. For best results, these set screws should be checked for tightness each day.

Clamp the ground onto the work table or directly to the duct being welded. Set the weld time approximately midway between the min. and max. setting. This setting should be adjusted accordingly to the lowest setting required to give good welds. Several test welds should be made on a scrap piece of similar gauge, through the insulation, to determine the best setting.

Place a pin on the collet and pierce through the insulation. A slight twisting motion may be necessary to penetrate to the base metal. . Holding the gun steady and with a downward pressure, pull the trigger. The green light will come on for the duration of the weld cycle, as determined by the weld timing setting. Keep the trigger depressed until the green light goes off.

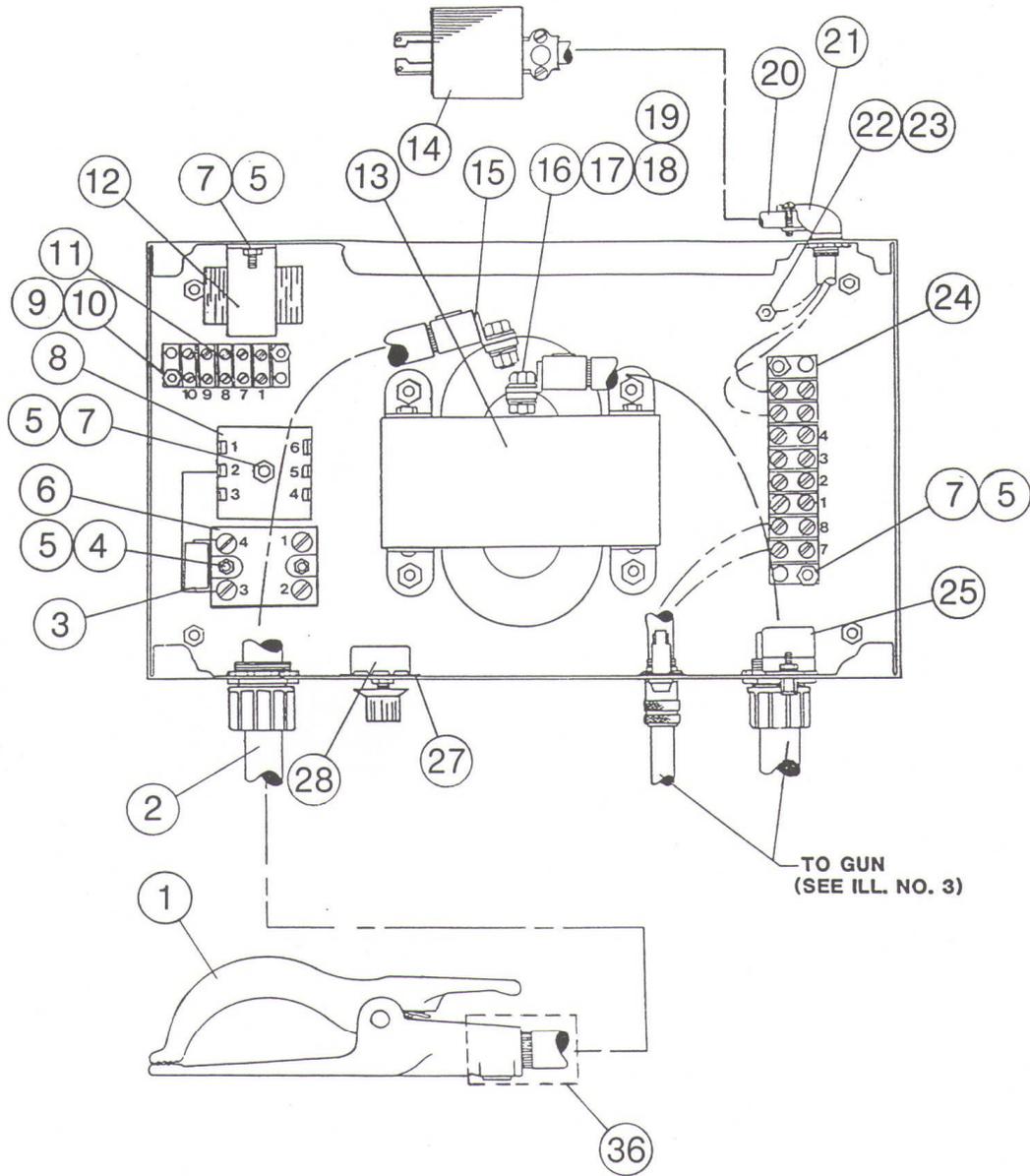
## MAINTENANCE OF THE WELDING SYSTEM

Since this welder is all solid state, very little is necessary in the way of maintenance. AGM does recommend that the following be done periodically for optimum performance and reliability.

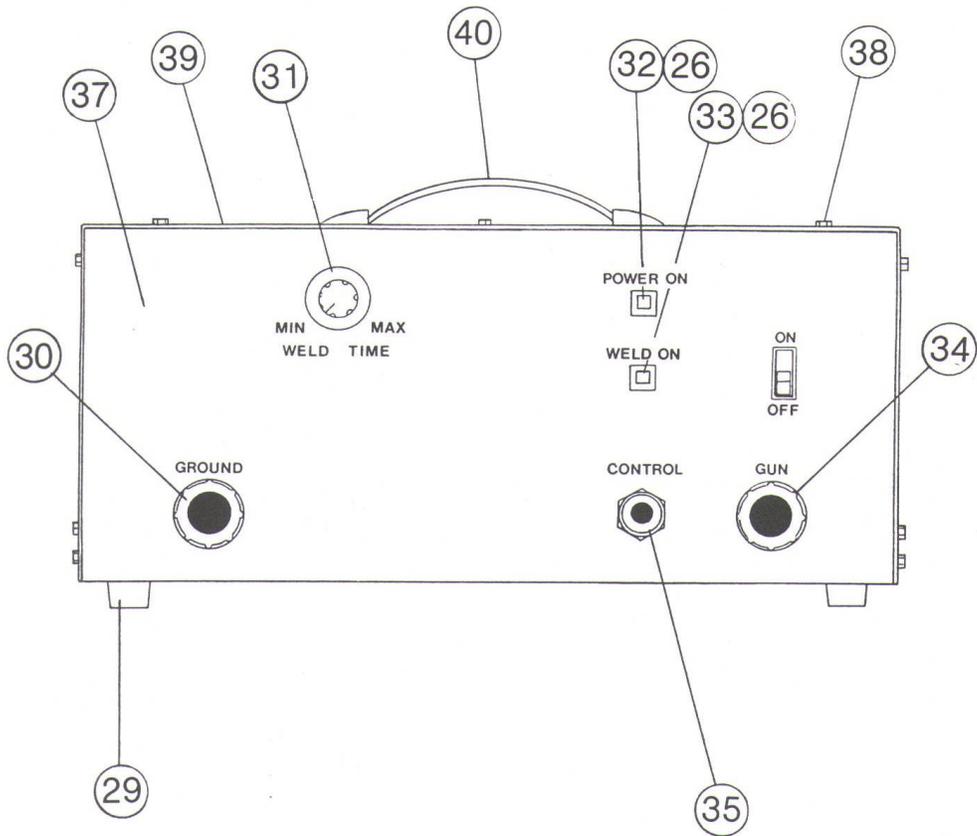


Be sure to put the AC Line Switch in the “**OFF**” position and remove the line cord from the power source whenever removing the cover on the welder. Failure to do so could cause serious electric shock or injury

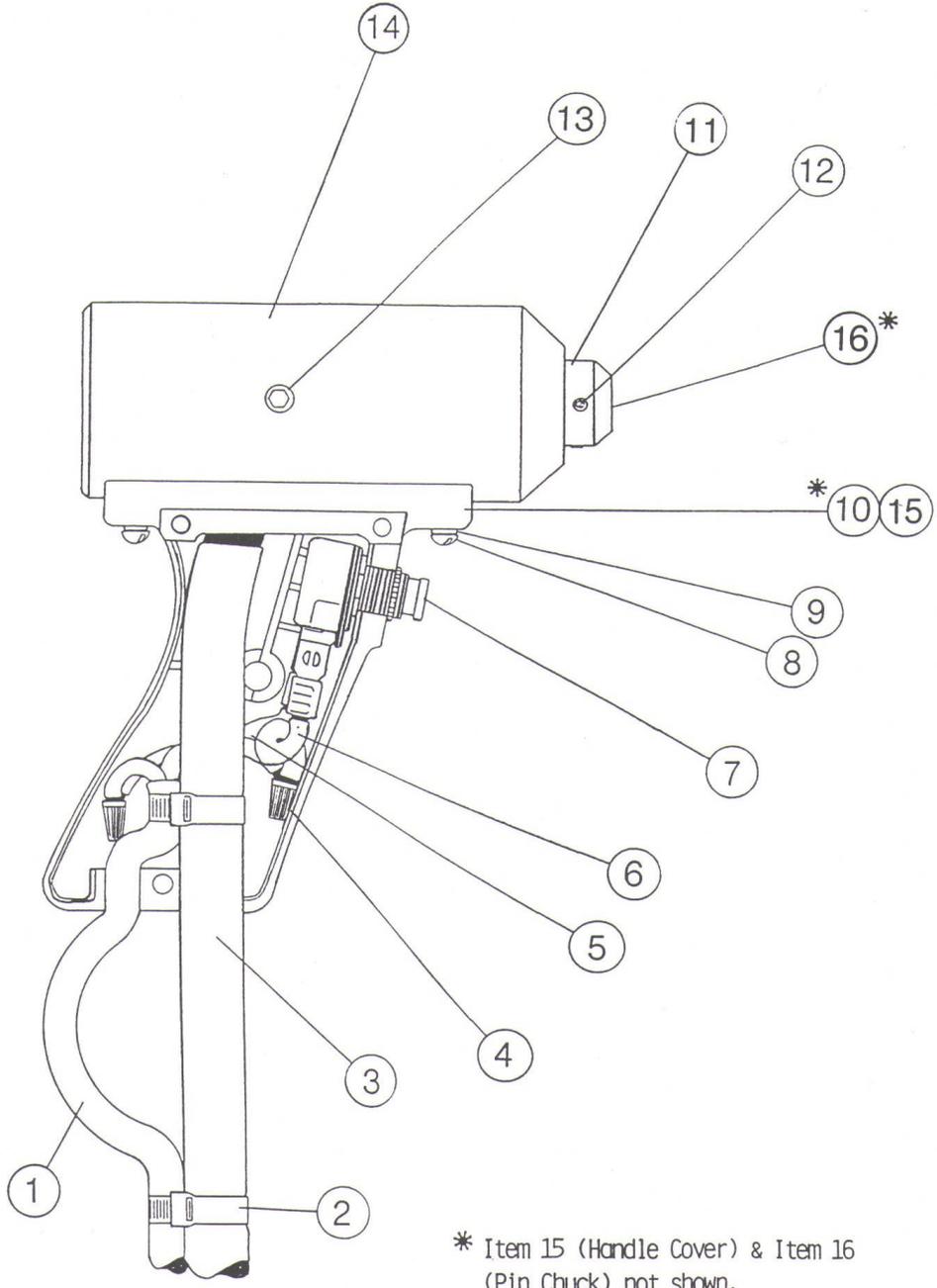
1. Clean the inside of the welder of all foreign debris with a brush or compressed air.
2. Tighten all hardware especially that in the welding circuit. This includes connections at the welding transformer, gun shaft, chuck and ground clamp.
3. Keep the faces of the ground clamp tightly to the base metal.
4. Replace magnetic chuck when its face becomes badly burned or its magnets become weak.
5. Check for proper strain relief of the weld/control cable at both the welder and the gun. The heavy welding lead should always take the strain so as not to break the more fragile control cable.
6. **DO NOT** drag the welder by the gun or cables, as this will cause cable breakage.



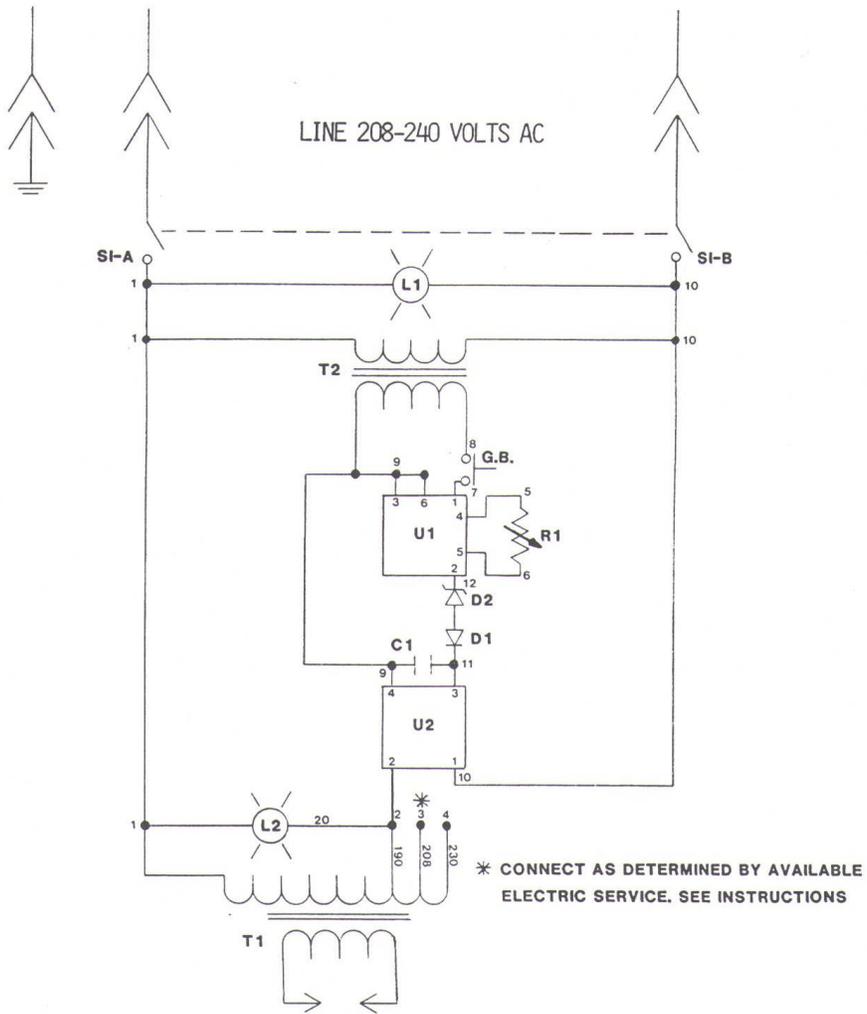
ILL. NO. 1



ILL. NO. 2



ILL. NO. 3



# MODEL DP-150 WIRING DIAGRAM

ILL NO. 4

## WIRING DIAGRAM LEGEND

<u>SYMBOL</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
C1	Part of 2748-E	Capacitor, filter
D1	“	Diode
D2	“	Diode
GB	2117-E	Switch, gun trigger
L1	2703-E	Light, power on
L2	2295-E	Light, weld on
R1	2733-E	Potentiometer
S1 (A&B)	2734-E	Switch, on/off
T1	2702-E	Transformer, weld
T2	2735-E	Transformer, control
U1	2736-E	Timer, weld
U-2	2737-E	Relay, weld

POWER PACK (ILL. 1 & 2)

<u>ITEM NO.</u>	<u>PART NUMBER</u>	<u>QTY.</u>	<u>DESCRIPTION</u>
1	2742-E	1	CLAMP GROUND
2	2741-E	3.5'	WIRE WELD 4/0
3	2748-E	1	RECTIFIER ASSY.
4	1173-M	2	SPACER THREADED
5	1207-M	9	LOCKWASHER #6
6	2737-E	1	RELAY WELD U2
7	1227-M	7	HEX NUT 6-32
8	2736-E	1	TIMER WELD U1
9	2036-M	2	HEX NUT 6-32
10	2037-M	2	LOCKWASHER #6
11	1435-E	1	BLOCK 5 TERMINAL
12	2735-E	1	TRANSFORMER T2
13	2702-E	1	TRANSFORMER T1
14	2744-E	1	PLUG AC LINE
15	2740-E	2	LUG WELD WIRE
16	1218-M-0750	2	BOLT 1/4-20 X 3/4
17	1216-M	10	NEX NUT 1/4-20
18	2039-M	12	WASHER 1/4" FLAT
19	2029-M	6	WASHER 1/4" SPLIT
20	2343-E	7.5'	12/3 LINE CORD
21	2732-M	1	STRAIN RELIEF
22	1211-M	5	HEX NUT 10-32
23	1230-M	5	LOCKWASHER #10
24	2739-E	1	BLOCK 8 TERMINAL
25	2734-E	1	SWITCH ON OFF S1
26	2295-E-SN	2	SPEED NUT
27	2887-M	1	INSULATOR
28	2733-E	1	POTENTIOMETER
29	2301-M	4	FEET
30 & 34	2730-M	2	STRAIN RELIEF
31	1395-M	1	KNOB
32	2703-E	1	LIGHT POWER
33	2295-E	1	LIGHT WELD
35	1126-M	1	STRAIN RELIEF
36	NOT USED		
37	2728-M-G	1	CHASSIS

<u>ITEM NO.</u>	<u>PART NUMBER</u>	<u>QTY.</u>	<u>DESCRIPTION</u>
38	2079-M-0375	16	SCREW COVER
39	2729-M-G	1	COVER
40	2441-M	1	HANDLE

				<u>GUN ILL. #3</u>	
1	3066-E		11.5'	WIRE CONTROL	
2	2374-M		11	CABLE TIE	
3	2743-E		11.5	WIRE WELD 3/0	
4	1959-E		2	WIRE NUT	
5&6	2215-E		2	SWITCH WIRE	
7	2217-E		1	SWITCH GUN	
8	2034-M-0500		1	SCREW	
9	1230-M		1	LOCKWASHER	
10	2745-M1		1	HANDLE MTG.	
11	2706-M		1	SHAFT GUN	
12	1213-M-0250		2	SET SCREW	
13	2065-M-0500		1	SET SCREW	
14	2705-M		1	GUN HOUSING	
15	2745-M2		1	COVERHANDLE	
16A	437-DP-M		1	COLLET 9GA	
16B	437-080		1	COLLET 14 GA	

# NOTES

Welder Serial Number \_\_\_\_\_

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