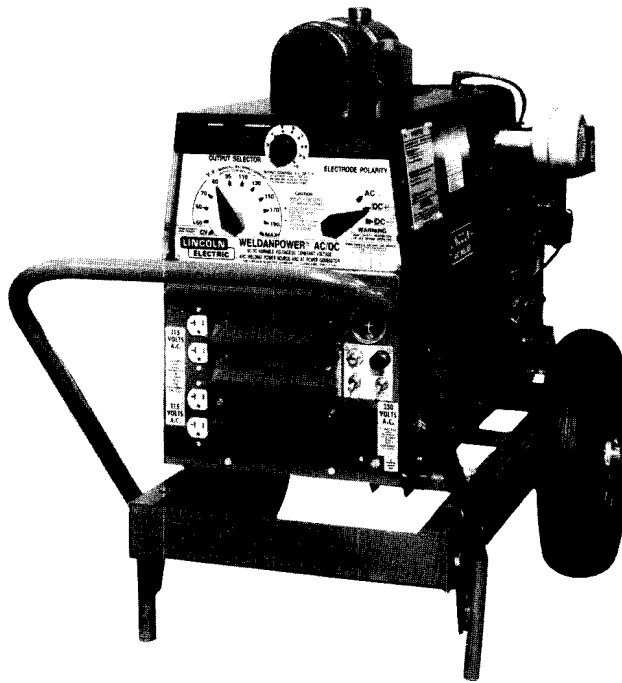


OPERATING MANUAL

WELDANPOWER[®] AC/DC

Combination AC/DC Arc Welding Power Source
and 6000 Watt AC Power Generator
(Available with CV Tap)



This manual covers equipment which is obsolete and no longer in production by The Lincoln Electric Co. Specifications and availability of optional features may have changed.

DAMAGE CLAIMS

When this equipment is shipped, title passes to the purchaser upon receipt by the carrier. Consequently, claims for material damaged in shipment must be made by the purchaser against the transportation company at the time the shipment is received.

SAFETY DEPENDS ON YOU

Lincoln arc welding equipment is designed and built with safety in mind. However, your overall safety can be increased by proper installation . . . and thoughtful operation on your part. **DO NOT INSTALL, OPERATE OR REPAIR THIS EQUIPMENT WITHOUT READING THIS OPERATING MANUAL AND THE ARC WELDING SAFETY PRECAUTIONS ON THE INSIDE FRONT COVER.** And, most importantly, think before you act and be careful.

ARC WELDING SAFETY PRECAUTIONS



WARNING: PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH.



ELECTRIC SHOCK can kill.

1. a. The electrode and work (or ground) circuits are electrically "hot" when the welder is on. Do not touch these "hot" parts with your bare skin or wet clothing. Wear dry, hole-free gloves to insulate hands.
- b. In semiautomatic or automatic wire welding, the electrode, electrode reel, welding head, nozzle or semiautomatic welding gun are also electrically "hot".
- c. Insulate yourself from work and ground using dry insulation. When welding in damp locations, on metal framework such as floors, gratings or scaffolds, and when in positions such as sitting or lying, make certain the insulation is large enough to cover your full area of physical contact with work and ground.
- d. Always be sure the work cable makes a good electrical connection with the metal being welded. The connection should be as close as possible to the area being welded.
- e. Ground the work or metal to be welded to a good electrical (earth) ground.
- f. Maintain the electrode holder, work clamp, welding cable and welding machine in good, safe operating condition. Replace damaged insulation.
- g. Never dip the electrode in water for cooling.
- h. Never simultaneously touch electrically "hot" parts of electrode holders connected to two welders because voltage between the two can be the total of the open circuit voltage of both welders.
- i. When working above floor level, protect yourself from a fall should you get a shock.
- j. Also see Items 4c and 6.



ARC RAYS can burn.

2. a. Use a shield with the proper filter and cover plates to protect your eyes from sparks and the rays of the arc when welding or observing open arc welding. Headshield and filter lens should conform to ANSI Z87.1 standards.
- b. Use suitable clothing made from durable flame-resistant material to protect your skin and that of your helpers from the arc rays.
- c. Protect other nearby personnel with suitable non-flammable screening and/or warn them not to watch the arc nor expose themselves to the arc rays or to hot spatter or metal.



FUMES AND GASES can be dangerous.

3. a. Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. When welding, keep your head out of the fume. Use enough ventilation and/or exhaust at the arc to keep fumes and gases away from the breathing zone. When welding on galvanized, lead or cadmium plated steel and other metals which produce toxic fumes, even greater care must be taken.
- b. Do not weld in locations near chlorinated hydrocarbon vapors coming from degreasing, cleaning or spraying operations. The heat and rays of the arc can react with solvent vapors to form phosgene, a highly toxic gas, and other irritating products.
- c. Shielding gases used for arc welding can displace air and cause injury or death. Always use enough ventilation, especially in confined areas, to insure breathing air is safe.
- d. Read and understand the manufacturer's instructions for this equipment and the consumables to be used, including the material safety data sheet (MSDS) and follow your employer's safety practices.
- e. Also see item 7b.



WELDING SPARKS can cause fire or explosion.

4. a. Remove fire hazards from the welding area. If this is not possible, cover them to prevent the welding sparks from starting a fire. Remember that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas. Have a fire extinguisher readily available.
- b. Where compressed gases are to be used at the job site, special precautions should be used to prevent hazardous situations. Refer to "Safety in Welding and Cutting" (ANSI Standard Z49.1) and the operating information for the equipment being used.
- c. When not welding, make certain no part of the electrode circuit is touching the work or ground. Accidental contact can cause overheating and create a fire hazard.
- d. Do not heat, cut or weld tanks, drums or containers until the proper steps have been taken to insure that such procedures will not cause flammable or toxic vapors from substances inside. They can cause an explosion even though they have been "cleaned." For information purchase "Recommended Safe Practices for the Preparation for

Welding and Cutting of Containers and Piping That Have Held Hazardous Substances”, AWS F4.1-80 from the American Welding Society (see address below).

- e. Vent hollow castings or containers before heating, cutting or welding. They may explode.
- f. Sparks and spatter are thrown from the welding arc. Wear oil free protective garments such as leather gloves, heavy shirt, cuffless trousers, high shoes and a cap over your hair. Wear ear plugs when welding out of position or in confined places. Always wear safety glasses with side shields when in a welding area.
- g. Connect the work cable to the work as close to the welding area as practical. Work cables connected to the building framework or other locations away from the welding area increase the possibility of the welding current passing through lifting chains, crane cables or other alternate circuits. This can create fire hazards or overheat lifting chains or cables until they fail.
- h. Also see item 7c.



CYLINDER may explode if damaged.

- 5. a. Use only compressed gas cylinders containing the correct shielding gas for the process used and properly operating regulators designed for the gas and pressure used. All hoses, fittings, etc. should be suitable for the application and maintained in good condition.
- b. Always keep cylinders in an upright position securely chained to an undercarriage or fixed support.
- c. Cylinders should be located:
 - Away from areas where they may be struck or subjected to physical damage.
 - A safe distance from arc welding or cutting operations and any other source of heat, sparks, or flame.
- d. Never allow the electrode, electrode holder, or any other electrically “hot” parts to touch a cylinder.
- e. Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.
- f. Valve protection caps should always be in place and handtight except when the cylinder is in use or connected for use.
- g. Read and follow the instructions on compressed gas cylinders, associated equipment, and CGA publication P-1, “Precautions for Safe Handling of Compressed Gases in Cylinders,” available from the Compressed Gas Association, 1235 Jefferson Davis Highway, Arlington, VA 22202.



FOR ELECTRICALLY powered equipment.

- 6. a. Turn off input power using the disconnect switch at the fuse box before working on the equipment.
- b. Install equipment in accordance with the National Electrical Code, all local codes and the manufacturer’s recommendations.
- c. Ground the equipment in accordance with the National Electrical Code and the manufacturer’s recommendations.



FOR ENGINE powered equipment.

- 7. a. Turn the engine off before troubleshooting and maintenance work unless the maintenance work requires it to be running.



- b. Operate engines in open, well-ventilated areas or vent the engine exhaust fumes outdoors.



- c. Do not add the fuel near an open flame, welding arc or when the engine is running. Stop the engine and allow it to cool before refueling to prevent spilled fuel from vaporizing on contact with hot engine parts and igniting. Do not spill fuel when filling tank. If fuel is spilled, wipe it up and do not start engine until fumes have been eliminated.



- d. Keep all equipment safety guards, covers and devices in position and in good repair. Keep hands, hair, clothing and tools away from V-belts, gears, fans and all other moving parts when starting, operating or repairing equipment.
- e. In some cases it may be necessary to remove safety guards to perform required maintenance. Remove guards only when necessary and replace them when the maintenance requiring their removal is complete. Always use the greatest care when working near moving parts.
- f. Do not put your hands near the engine fan. Do not attempt to override the governor or idler by pushing on the throttle control rods while the engine is running.
- g. To prevent accidentally starting gasoline engines while turning the engine or welding generator during maintenance work, disconnect the spark plug wires, distributor cap or magneto wire as appropriate.



- h. To avoid scalding, do not remove the radiator pressure cap when the engine is hot.

HAVE ALL INSTALLATION, OPERATION, MAINTENANCE AND REPAIR WORK performed by qualified people.

For more detailed information, it is strongly recommended that you purchase a copy of “Safety in Welding & Cutting — ANSI Standard Z49.1” from the American Welding Society, P.O. Box 351040, Miami, Florida 33135.

PROPER GROUNDING DURING INSTALLATION

The 1985 National Electrical Code does not require this machine to be grounded under normal operating circumstances.

Some State, local or other codes or unusual operating circumstances may require the machine frame to be grounded. It is recommended that you determine the extent to which such requirements may apply to your particular situation and follow them explicitly.

In general, if the machine is to be grounded, it should be connected with a #8 or larger copper wire to a solid earth ground such as a metal pipe going into the ground for at least ten feet and having no insulated joints, or to the metal framework of a building which has been effectively grounded. The National Electrical Code lists a number of alternate means of grounding electrical equipment. (If an older portable welder does not have a grounding stud, connect the ground to an unpainted frame screw or bolt.)

INSTALLATION, CONNECTION, AND MAINTENANCE OF BATTERY

To prevent EXPLOSION when:

- a) Installing a new battery — disconnect the negative cable from the old battery first and connect the negative cable to the new battery last.
- b) Connecting a battery charger — remove the battery from the welder by disconnecting the negative cable first, then the positive cable and battery clamp. When reinstalling, connect the negative cable last.
- c) Using a booster — connect the positive lead to the battery first then connect the negative lead to the copper strap on the engine foot.

To prevent ELECTRICAL DAMAGE when:

- a) Installing a new battery.
- b) Using a booster.

Use correct polarity — Negative Ground.

To prevent BATTERY DISCHARGE, if you have an ignition switch, turn it off when the engine is not running.

To prevent BATTERY BUCKLING, tighten nuts on battery clamp only until snug.

(S-17851)

OPERATION OF ENGINE WELDERS

WARNING: Operate internal combustion engines in open, well ventilated areas or vent engine exhaust fumes outdoors.

OPERATION OF ALL WELDERS

DO NOT TURN THE “CURRENT RANGE SELECTOR” WHILE WELDING because the current may arc between the contacts and damage the switch.

MAINTENANCE AND TROUBLESHOOTING WARNINGS

WARNING: Have qualified personnel do the maintenance and troubleshooting work. Turn the engine (or electrical power at the switchbox) off before working inside the machine. In some cases, it may be necessary to remove safety guards to perform required maintenance. Remove guards only when necessary and replace them when the maintenance requiring their removal is complete. Always use the greatest care when working near moving parts.

ATTENTION OWNERS OF ENGINE WELDERS

WARNING: Do not put your hands near the engine fan. Do not attempt to override the governor or idler by pushing on the throttle control rods while the engine is running. If a problem cannot be corrected by following the instructions, take the machine to the nearest Lincoln Field Service Shop.

CAUTION WHEN INSPECTING THE COMMUTATOR AND BRUSHES

WARNING: Uncovered rotating equipment can be dangerous. Use care so your hands, hair, clothing or tools do not catch in the rotating parts. Protect yourself from particles that may be thrown out by the rotating armature when stoning the commutator.

NAMEPLATES

Whenever routine maintenance is performed on this machine — or at least yearly — inspect all nameplates and labels for legibility. Replace those which are no longer clear. Refer to the parts list for the replacement item number.

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PRODUCT DESCRIPTION

The Weldenpower AC/DC is designed to provide a maximum welding output of 225 amps AC or 210 amps DC at 25 volts or 6 kilowatts of 115/230 volts, 60 Hz AC auxiliary power. Auxiliary power is suitable for temporary, standby, or emergency power using the engine manufacturer's recommended maintenance schedule.

With or without the optional Constant Voltage (CV) Tap (standard on the Onan engine unit), the units are designed to be used with a broad range of AC and DC stick electrodes as described on page 9 of this

manual as well as AC power tools and accessories within the rating of the unit.

A factory installed CV Tap is presently available as an option on units featuring the Briggs & Stratton engine and is standard equipment on Onan engine equipped units. With the CV Tap, the Weldenpower is capable of semiautomatic welding with either Lincoln Innershield® or Outershield™ (FCAW) or solid wire electrodes for MIG welding (GMAW) such as Lincoln L-50.

PRE-OPERATION INSTALLATION

WARNING: Have qualified personnel do all electrical and mechanical installation. Be sure engine is off and allowed to cool before working on machine.

GROUNDING

The U.S. National Electrical Code requires that this machine be grounded under certain operating circumstances.

Further, some state, local or other codes or unusual operating circumstances may require the machine frame to be grounded. It is recommended that you determine the extent to which such requirements apply to your particular situation and follow them explicitly. A machine grounding stud marked with the symbol \perp is provided below the welder control panel.



In general, if the machine is to be grounded, it should be connected with a #10 or larger copper wire to a solid earth ground such as a metal water pipe going into the ground for at least ten feet and having no insulated joints, or to the metal framework of a building which has been effectively grounded. The National Electrical Code lists a number of alternate means of grounding electrical equipment.

UNDERCARRIAGES

The recommended undercarriage for use with this equipment for hand towing is Lincoln's K-728-D, or for in-plant and yard towing by a vehicle, Lincoln's K-768-D. If the user adapts a non-Lincoln undercarriage, he must assume responsibility that the method of attachment and usage does not result in a safety hazard nor damage the welding equipment. Some of the factors to be considered are as follows:

1. Design capacity of undercarriage vs. weight of Lincoln equipment and likely additional attachments.

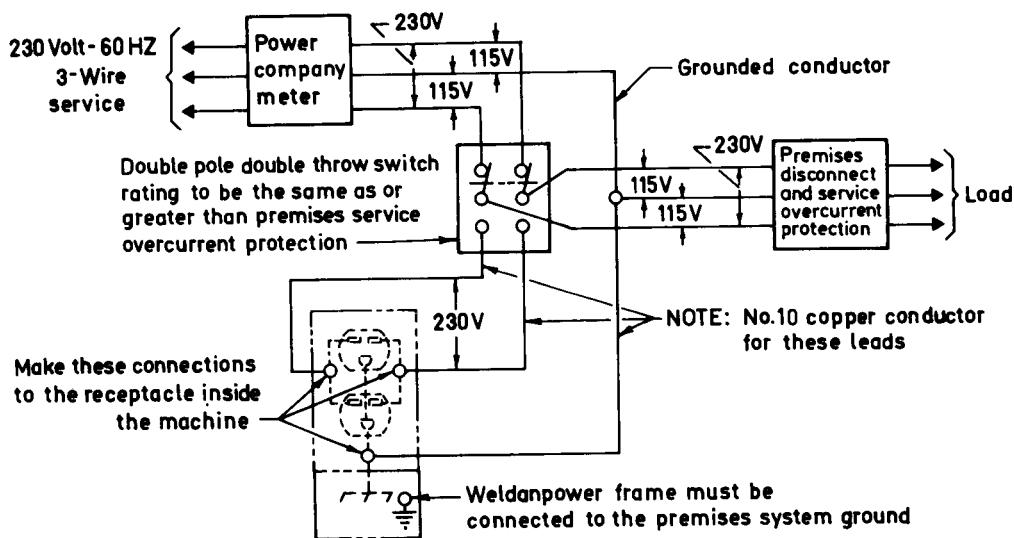
2. Proper support of, and attachment to, the base of the welding equipment so there will be no undue stress to the framework.
3. Proper placement of the equipment on the undercarriage to ensure stability side to side and front to back when being moved and when standing by itself while being operated or serviced.
4. Typical conditions of use, i.e. travel speed; roughness of surface on which the undercarriage will be operated; environmental conditions; likely maintenance.
5. Conformance to applicable federal, state and local laws regarding specific requirements for use on public highways.

 WARNING	<ul style="list-style-type: none">• Do not lift this machine using lift bale if it is equipped with a heavy accessory such as trailer or gas cylinder.• Lift only with equipment of adequate lifting capacity.• Be sure machine is stable when lifting.
	
FALLING EQUIPMENT can cause injury.	

LIFT BAIL

A lift bail is provided for lifting the machine with a hoist.

CONNECTION OF W/P AC/DC TO PREMISES SYSTEM



STANDBY POWER CONNECTIONS

Suitable for temporary or emergency power using manufacturer's recommended maintenance schedule.

The Weldanpower AC/DC can be permanently installed as a standby power unit for a 230 volt-3 wire, 26 ampere service. Connections must be made by a licensed electrician who can determine how the 115/230 volt Weldanpower can be adapted to the particular installation and comply with all applicable electrical codes. The following information can be used as a guide by the electrician for most applications (refer to the connection diagram above).

Switch rating must be the same as or greater than the customer's premises disconnect and service overcurrent protection.

1. Install a double pole, double throw switch between the power company meter and the premises disconnect.
2. With the engine off, remove the Weldanpower cover and make permanent connections from the Weldanpower 230 volt receptacle terminals to the switch installed in step 1. Replace the Weldan-

power cover after making the connections. An access hole should be made in the cover to bring out the conductors to the switch. Use caution to protect the leads from any sharp corners.

3. Properly ground the Weldanpower frame to the premises system ground.
4. Take necessary steps to assure load is limited to the capacity of the Weldanpower by installing a 25 amp, 230 volt double pole circuit breaker. Maximum rated load for the 230 volt auxiliary is 26 amperes. Loading above 26 amperes will reduce output voltage below the allowable – 10% of rated voltage which may damage appliances or other motor-driven equipment.
5. See "Location/Ventilation" and other Operating Instructions.

TABLE 1
Recommended Copper Cable Sizes
Combined Electrode and Work Length



Amperes	Duty Cycle	50-100 Ft.	100-150 Ft.	150-200 Ft.
150	40	5	3	2
200	50	3	2	1
225	40	3	2	1

PRE-OPERATING MAINTENANCE

Oil

Upon receipt of the welder, fill the crankcase with oil to the "full" mark on the dipstick. Use the weight and type oil recommended by the engine manufacturer in the Engine Operator's Manual. Do *not* overfill. Total lube oil capacity is 4 pints for Briggs and Stratton engine, 3.5 pints for Onan with filter change.

NOTE: An internal kill switch will shut down the engine if the oil level drops below a minimum operating level on the Onan engine only.

 WARNING	<ul style="list-style-type: none">● Stop engine when fueling● Do not smoke when fueling● Remove cap slowly to release pressure● Do not overfill tank● Wipe up spilled fuel and allow fumes to clear before starting engine● Keep sparks and flame away from tank● Shut fuel off at tank when moving machine
	
GASOLINE fuel can cause fire or explosion.	

Fuel:

Fill the fuel tank with the grade of fuel recommended in the Engine Operator's Manual. Make sure fuel valve on the sediment bowl is in the open position.




Battery Charging

The battery is maintained at its proper state of charge by the battery charger PC Board with Briggs and Stratton units and by the alternator/regulator on Onan units. The charging current is automatically regulated from approximately 2.5 amps when the battery is low (after starting the engine) to a trickle current when the battery is fully charged. If the welder is operated with the battery disconnected (Briggs and Stratton units only), the battery cable terminals should be taped separately with insulating tape to avoid damage to the charging circuit.

NOTE: The Onan unit cannot be operated with the battery disconnected.

When replacing, jumping or otherwise connecting the battery to the battery cables, the proper polarity *must* be observed.

CAUTION: Failure to observe the proper polarity could result in damage to the charging circuit. The positive battery *cable* is designated with a "P" stenciled on the terminal lug and the negative battery *cable* has an "N" stenciled on the terminal lug. The battery post is marked "+" for positive and "-" for negative.

 WARNING	
	<ul style="list-style-type: none">● Keep sparks, flame and cigarettes away from battery. <p>To prevent EXPLOSION when:</p> <ul style="list-style-type: none">● INSTALLING A NEW BATTERY — disconnect negative cable from old battery first and connect to new battery last.● CONNECTING A BATTERY CHARGER — remove battery from welder by disconnecting negative cable first, then positive cable and battery clamp. When reinstalling, connect negative cable last. Keep well ventilated.● USING A BOOSTER — connect positive lead to battery first then connect negative lead to copper strap on engine foot.
GASES FROM BATTERY can explode.	
	<ul style="list-style-type: none">● Wear gloves and eye protection and be careful when working near battery.● Follow instructions printed on battery.
BATTERY ACID can burn eyes and skin.	

IMPORTANT: To prevent **ELECTRICAL DAMAGE** WHEN:

a) Installing a new battery.

b) Using a booster.

Use correct polarity — **Negative Ground**.

To prevent **BATTERY DISCHARGE**, if you have an ignition switch, turn it off when engine is not running.

To prevent **BATTERY BUCKLING**, tighten nuts on battery until snug.

The ammeter is the best indicator of the condition of the charging circuit. If the ammeter shows a charging current into the (+) area with the engine stopped, then the battery cables are reversed and should be connected correctly. If the ammeter shows a discharging current into the (-) area with the engine stopped, the charging circuit is faulty and requires service.

OPERATING INSTRUCTIONS — Safety Precautions

WARNING

Do not attempt to use this equipment until you have thoroughly read the engine manufacturer's manual supplied with your welder. It includes important safety precautions, detailed engine starting, operating and maintenance instructions, and parts lists.

Pipe Thawing

The Weldanpower AC/DC, which is capable of maintaining a 100 percent duty cycle, may be used for pipe thawing without harm to the welder. Use only the AC output settings up to the max tap for pipe thawing. DO NOT use the CV Tap setting or the max tap on AC.

WARNING



PIPE THAWING
can result in fire or
explosion.

- Only connect welder across FROZEN section of CONTINUOUS METAL PIPE.
- While thawing, remove any ground leads connected to frozen pipe.
- Turn welder on AFTER cables are connected to pipe. Turn off when done.

IMPORTANT:

DO NOT USE A WELDER TO THAW A PIPE BEFORE REVIEWING LINCOLN BULLETIN E695.1 (dated October 1987 or later). This bulletin may be obtained from your local Lincoln distributor or by writing directly to Lincoln Electric at the address on the back of this manual.

Location/Ventilation

The welder should be located to provide an unrestricted flow of clean, cool air to the cooling air inlets and to avoid heated air coming out of the top of the welder recirculating back to the cooling air inlet. Also, locate the welder so that engine exhaust fumes are properly vented to an outside area.

Angle of Operation

Engines are designed to run in the level condition which is where the optimum performance is achieved. The maximum angle of operation is 12 degrees continuously in any direction. If the engine is to be operated at an angle, provisions must be made for checking and maintaining the oil level at the normal (FULL) oil capacity in the crankcase.

When operating the welder at an angle, the effective fuel capacity will be slightly less than the specified maximum. Consult the Engine Operator's Manual for specified maximum.

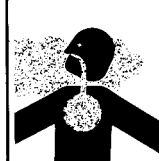
STARTING THE ENGINE

WARNING



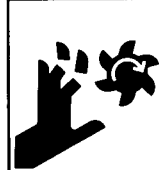
ELECTRIC SHOCK can kill.

- Do not touch electrically live parts such as output terminals or internal wiring



ENGINE EXHAUST can kill.

- Use in open, well ventilated areas or vent exhaust outside



MOVING PARTS can injure.

- Do not operate with doors open or guards off
- Stop engine before servicing
- Keep away from moving parts

Only qualified personnel should install, use, or service this equipment.

Be sure all Pre-Operation Maintenance has been performed. Remove all loads connected to the AC power receptacles before starting.

Your engine is equipped with a factory-installed electric starter. The electric start system includes a wet-charged battery. The battery may require a booster charge if allowed to go unused for several months.

See previous section on "Battery Charging".

All Onan engine units and Briggs and Stratton units below Code 9094 use a separate ignition switch and starter button. To start these units, turn the idle switch to AUTOMATIC IDLE, pull the choke control out, turn the ignition switch to RUN and depress the starter button until the engine starts. Immediately after the engine has started, slowly return the choke to full in position (choke open).

Briggs and Stratton units above Code 9094 use a combination ignition and start switch. To start these units, hold the switch in the "START" position. When the engine starts, release the switch allowing it to return to the "RUN" position. The ignition switch also includes a "STOP" position for immediate shutdown.

Allow the engine to warm up by letting it run at low idle for a few minutes. When the idler switch is in "AUTOMATIC IDLE" position, the engine will run at low idle speed after one 10-15 second delay period at high idle speed.

NOTE: Placing the idler switch in the "HIGH IDLE" position will void this feature. The Automatic Engine Idler does not function when using the K-799 Hi-Freq™ Kit due to the current draw of the Hi-Freq Kit. Also, the idler will not function when welding in the CV mode. Place the idler switch in the "HIGH IDLE" position for Hi-Freq or Constant Voltage welding.

STOPPING THE ENGINE

Remove the load and let the engine run at low idle speed for a few minutes before stopping. The engine is stopped by turning the ignition switch to STOP.

 **WARNING**

WARNING: Shut off fuel sediment bowl when transporting on undercarriage, trailer, back of truck, etc.

OPERATION AS A WELDER (Without Optional CV Tap) — Briggs and Stratton only

1. With the engine off, connect the "Work" cable to the welder output stud marked "Work".
2. Connect the "Electrode" cable to the welder output stud marked "Electrode".
3. Start the engine.
4. Set the idler switch to the desired operating mode.

5. Set the OUTPUT SELECTOR switch to the desired welding current and the machine is ready for welding.

The OUTPUT SELECTOR switch is an eleven position switch with designated welding currents as follows: 50, 60, 70, 80, 95, 110, 130, 150, 170, 190 and Maximum. The Maximum tap provides 225 amps AC and 210 amps DC. Each tap is rated at 100 percent duty cycle.

CAUTION: Never change the OUTPUT SELECTOR switch or POLARITY setting while welding. This will cause severe damage to the switch.

A fine adjustment of the welding current can be made with the OUTPUT CONTROL knob. This control provides current settings between the OUTPUT SELECTOR switch positions. e.g. At min setting on 95-130 amp tap, output is 95 amps.

The ELECTRODE GUIDE below (Table 2) lists the recommended stick electrodes and settings for this machine.

OPERATION AS A WELDER (With CV Tap) — Optional on K-1292 (Briggs and Stratton); Standard on K-1326 CV (Onan)

With the factory installed CV Tap, the machine can be used for either Constant Current (CC) or Constant Voltage (CV) welding. On the units with the CV Tap option, the OUTPUT CONTROL knob provides welding current settings between the OUTPUT SELECTOR switch positions in the Constant Current (CC) range. With the OUTPUT SELECTOR switch in the Constant Voltage (CV) position, the OUTPUT CONTROL knob adjusts the welding voltage.

TABLE 2
Electrode Guide

Electrode Type	Electrode Polarity	Electrode Size				
		3/32	1/8	5/32	3/16	7/32
Fleetweld 5P+	DC(+)	50-70	70-110	95-130	130-190	190-210
Fleetweld 35	AC		70-110	95-150	150-190	
Fleetweld 37	AC	80-110	110-150	150-190	190-225	
Fleetweld 57	AC		110-150			
Fleetweld 180	AC	60-180	80-110	130-150		
LH-70	DC(+)	70-110	95-150	130-190	170-210	
LH-73	AC	70-90	95-135	140-200		
LH-75	DC(+)	70-110	95-160	120-190	180-210	
LH-78	DC(+)	85-110	110-160	130-200	180-210	

For CC Welding — “Stick”

All procedures and cautions should be followed as described above for operation as a welder without the CV Tap. In addition, it is recommended that the OUTPUT SELECTOR switch be set for the closest desired CC welding current and then a fine adjustment be made with the OUTPUT CONTROL knob. In this way, the OUTPUT CONTROL knob will usually be set near its maximum setting (10) and will give the best arc stability and maximum auxiliary power.

Some arc instability may be experienced when the OUTPUT CONTROL knob is set at the low end of its control range. Also, the OUTPUT CONTROL knob is to be set at (5) or higher for auxiliary operation.

For CV Welding — “Wire Welding”

1. The welding cables should be connected to the “Work” and “Electrode” studs for connecting the wire feeder and work lead.
2. Set the OUTPUT SELECTOR switch to “CV”.
3. The IDLER switch to “High Idle”.
4. The POLARITY switch to “DC(+)” or “DC(-)”. The machine is now ready for welding.

NOTE: Limited auxiliary power is available when *welding* in the CV mode. (there is sufficient power to run an LN-7 wire feeder.) If *not* welding, the OUTPUT CONTROL knob must be set at (5) or higher for auxiliary power operation.

CV Processes:

The CV Tap is rated at 200 amps, 20 volts DC. At 200 amps, 13 to 20 volts are available. At 100 amps, the voltage range is 17 to 24, and at 80 amps the voltage range is 19 to 25 volts.

FCAW:

The CV Tap permits the Weldonpower AC/DC to be used with the Lincoln LN-22 or LN-7 wire feeders and .068” NR-211-MP Innershield® self-shielded electrode (FCAW). Because of the range of voltage and output current available from the Weldonpower, .068” NR-211-MP is the only Innershield electrode recommended.

GMAW:

The use of other open arc processes, such as MIG welding (GMAW) or FCAW gas-shielded, is also possible with the CV Tap. Due to the range of voltage and output current available from the Weldonpower, .023, .030, or .035” wire diameters are the only solid wire electrode sizes recommended.

To perform MIG (GMAW) welding with the Weldonpower AC/DC, the LN-22 wire feeder may not be used. Other wire feeders, such as the LN-7 or LN-7 GMA, are required.

When using an LN-7 with this power source, the K-240 Contactor Kit is also required. The LN-7 wire feeder will draw a small amount of current from the auxiliary power of the unit while welding. The limiting factors in using an LN-7 with the Weldonpower AC/DC are:

1. Welding current and voltage must be within the rating of the machine.
2. The auxiliary power voltage into the wire feeder must remain above 98 volts while welding. The auxiliary power voltage is determined by a combination of the welding load and the setting of the OUTPUT CONTROL knob. The higher the welding load, the higher (closer to “10” on the dial) the OUTPUT CONTROL knob must be set.

When used with the LN-22 or LN-7/K-240 and .068 NR-211-MP, welding can be done with wire feed rates of 60 to 90”/min. No shielding gas is required. A number of GMAW welding procedures using .030 L-50 or .035 L-50/L-56 can also be done with LN-7 or LN-7 GMA wire feeders and K-240 Contactor Kit combinations, at wire feed speeds up to 400”/min. Consult your local Lincoln distributor for a recommendation on the proper shielding gas.

TIG WELDING

The Weldonpower AC/DC may be used as a power source for TIG welding in conjunction with the K-799 Hi-Freq™, Code numbers above 8400. The combined package will permit TIG welding up through 170 amps. For mounting to a Weldonpower AC/DC, order K-799-WP (includes the mounting hardware).

The prior design K-799 High Frequency Generator (Code number 8326 and below) requires use of the K-810 Hi-Freq Adapter Kit. On these units, the maximum TIG welding current is 135 amperes. When the K-810 is used, the necessary hardware for mounting to the Weldonpower AC/DC is provided in the K-810 package.

The K-799 should be used with the Weldonpower AC/DC on high idle to maintain satisfactory operation. (See “NOTE” under STARTING THE ENGINE on page 8-9. See IM-298, shipped with the Hi-Freq, and the instructions shipped with the K-810 for complete details.)

NOTE: See warning at top of page 11 regarding important installation information.

CAUTION: Use of the Weldanpower AC/DC and Hi-Freq™ combination for TIG welding will damage the Weldanpower if the RF Bypass Capacitor Kit (provided with Hi-Freq) is not installed. The Hi-Freq unit includes an R.F. by-pass capacitor kit for power source protection. Installation instructions are in the kit. (When using the Weldanpower AC/DC with any other high frequency equipment, an R.F. by-pass capacitor must be installed. Order kit T-12246.) To provide protection, the welder grounding stud or frame must also be connected to ground. Follow the grounding instructions given in the Hi-Freq instruction manual (IM-298).

OPERATION AS AN AC POWER SOURCE

IMPORTANT: When auxiliary power plants of 5000 watts or larger are used on construction sites, the National Electric Code requires the use of a ground fault interrupter or an assured equipment grounding conductor program. Consult the National Electric Code for full details.

Start the engine and set the engine idler to the desired operating mode. Voltage is now at the receptacles for the auxiliary power. Do not apply a load to the machine until the engine is up to full speed. Failure to do this may keep the Weldanpower from building up its voltage. If this should happen, remove the load and allow the engine to reach high speed before re-applying the load.

For units without the CV Tap, the total auxiliary power output capability of the machine is 6 KW when the OUTPUT CONTROL knob is set at (10) and is 5.5 KW when set at (1).

For units with the CV Tap, the total auxiliary power output capability of the machine is especially dependent on the setting of the OUTPUT CONTROL knob. The knob must be set between (5) and (10) for any auxiliary power operation. Note the total auxiliary power output capability of the machine is the full 6 KW when the OUTPUT CONTROL knob is set at (10) and 5.5 KW when it is set at (5). Insufficient voltage will be produced if the knob is set at (1).

When using the 230 volt auxiliary power receptacles, each single receptacle has a maximum rating of 15 amps. The total current that can be drawn from both receptacles at one time is 26 amps. Examine the specifications of the equipment being used to determine its current draw.

IMPORTANT: The current rating of any plug used with the system must be at least equal to the current load through the associated receptacle. Do not attempt to connect power receptacles in parallel.

The auxiliary power receptacles should be used only with three wire ground type plugs or approved double insulated tools with two wire plugs.

Most 1.5 HP motors can be started if there is no load on the motor or other load connected to the machine, since the full load current rating of a 1.5 HP motor is approximately 20 amperes (10 amperes for 230 volt motors). The motor may be run at full load when plugged into only one side of the duplex receptacle. Larger motors through 2 HP can be run *provided* the receptacle rating as previously stated is not exceeded. This may necessitate 230 volt operation only.

The above auxiliary power ratings are with no welding load. Simultaneous welding and power loads are permitted by following Table 3 listed below. The permissible current shown assumes that current is being drawn from either the 115 volt or 230 volt supply (not both at the same time) and that the OUTPUT CONTROL knob is set at (10). A lower setting on the OUTPUT CONTROL knob will decrease the available auxiliary power.

TABLE 3




Welding Output AC/DC (amps)	Permissible Power (watts) ⁽¹⁾	Permissible Auxiliary Power (Current)	
		@ 115 V	@ 230 V
150-Max Amps or CV Tap when provided	None ⁽²⁾	0 ⁽²⁾	0 ⁽²⁾
130 amps	1600 watts	14 amps	7 amps
110 amps	2500 watts	22 amps	11 amps
80-95 amps	3300 watts	29 amps	14.5 amps
60-70 amps	4000 watts	35 amps	17.5 amps
50 amps	5000 watts	44 amps	22 amps
None	6000 watts	52 amps	26 amps

⁽¹⁾ Output rating is watts at unity power factor. Output voltage within $\pm 10\%$ at all loads up to rated capacity.

⁽²⁾ Sufficient auxiliary power is available to power an LN-7 wire feed unit.

Short circuit protection of the auxiliary power circuit is provided. If the power winding is short circuited, the output voltage falls to zero. When the short is removed, the power voltage returns to normal.

MAINTENANCE AND TROUBLESHOOTING

⚠ WARNING	
	ELECTRIC SHOCK can kill. <ul style="list-style-type: none"> ● Do not touch electrically live parts such as output terminals or internal wiring
	ENGINE EXHAUST can kill. <ul style="list-style-type: none"> ● Use in open, well ventilated areas or vent exhaust outside
	MOVING PARTS can injure. <ul style="list-style-type: none"> ● Do not operate with doors open or guards off ● Stop engine before servicing ● Keep away from moving parts
<ul style="list-style-type: none"> ● Remove guards only when necessary and replace when work requiring removal is complete. ● Only qualified personnel should install, use, or service this equipment. 	

1. Blow out the welder and controls with low pressure air periodically. In particularly dirty locations this may be required once each week.
2. Governor and carburetor joints and the throttle shaft must be kept clean and lubricated.
3. Refer to the engine manufacturer's manual for engine maintenance and troubleshooting instructions.

GENERATOR MAINTENANCE

Slip Rings — There is a little normal wear on the slip rings and brushes. Brushes should be inspected when a general overhaul is necessary.

Rotor — In the event of a major engine overhaul, it will be necessary to remove the rotor. This is accomplished by loosening the rotor thru bolt and backing it out a few turns. Then give the thru bolt a blow with a hammer. The rotor assembly should break loose from the engine shaft.

Should the generator fail to “build up”, check to be sure that the brushes move freely in the brushholder and that each is well seated on the slip rings. **USE EXTREME CAUTION WHEN MEASURING VOLTAGE BETWEEN THE BRUSHES WITH THE ENGINE RUNNING.** Voltage between the two brushes should be 32-45 volts when the OUTPUT CONTROL knob is set at (10). Zero voltage indicates possible shorted capacitors, open output control rheostat, faulty bridge rectifier, a malfunction of the

flashing circuit, or a blown fuse in the flashing circuit. Check the flashing diode, 8 amp flashing circuit protection fuse, and the flywheel alternator or oil pressure switch (depending on engine manufacturer) to be sure this circuit functions correctly.

On the Briggs and Stratton unit, the voltage to frame at lead #200 should be 21-26 volts with the brushes lifted and 10-14 volts with brushes contacting slip rings and circuit lead #219 open. Continued failure of the generator to “build up” indicates a possible rotor or stator winding failure such as an open or short circuit.

WARNING: Uncovered rotating equipment can be dangerous. Use care so hands, hair, clothing or tools do not catch in the rotating parts. Protect yourself from particles that may be thrown out by rotating the rotor when stoning the slip rings.

NAMEPLATES

Whenever routine maintenance is performed on this machine — or at least yearly — inspect all nameplates and labels for legibility. Replace those which are no longer clear. Refer to the parts lists for the replacement item number.

TROUBLESHOOTING THE AUTOMATIC ENGINE IDLER

Trouble	Cause	What To Do
A. Engine will not idle down to low speed.	<ol style="list-style-type: none"> 1. Idler switch not on Automatic Idle. 2. External load on welder or auxiliary power. 3. a. No voltage present between terminals #213 and #5. (Voltage should be 12 VDC). b. Battery disconnected. 4. No open circuit voltage on the auxiliary power receptacles. 5. No voltage present between terminals #3 and #5. (Voltage should be 120 VAC). 6. Faulty idler solenoid. 7. Faulty P.C. board. 8. Idler solenoid position out of adjustment. 9. K-799 Hi-Freq Kit connected to Weldonpower. 	<ol style="list-style-type: none"> 1. Set switch on Automatic Idle. 2. Remove all external loads and short circuits. 3. a. Check for broken leads #213, #5, #212, and #209. b. Battery must be connected for idler operation. 4. Check for generator build up. 5. Check for broken leads #3 and #5. 6. Check for open or broken lead #213 and #215. 7. Replace P.C. board with known good one. 8. Adjust solenoid as necessary. 9. Use K-799 with Weldonpower on high idle (see page 8).
B. Engine will not go to high idle when attempting to weld.	<ol style="list-style-type: none"> 1. No voltage signal from the idler transformer. 2. No open circuit voltage on output studs. 3. Faulty idler P.C. board. 	<ol style="list-style-type: none"> 1. Check idler transformer operation. Check for broken leads #217, #216, R2, and #2. 2. Check generator output. 3. Replace P.C. board with known good one.
C. Engine will not go to high idle when using auxiliary power.	<ol style="list-style-type: none"> 1. No voltage signal from the idler current transformer. 2. Auxiliary power load less than 1 amp. 3. Faulty idler P.C. board. 	<ol style="list-style-type: none"> 1. Check idler current transformer operation. Check for broken leads #218, #3 and #5 on the idler current transformer. 2. Idler will not function with less than 1 amp load. Set idler switch to high idle. 3. Replace P.C. board with known good one.

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For details write: Lincoln Welding School
22801 St. Clair
Cleveland, Ohio 44117-1199

and ask for bulletin ED-80 or call 216-481-8100 and ask for the Welding School Registrar.

ENGINE IDLER ADJUSTMENT

WELDANPOWER® AC/DC

If the engine idler should require adjustment, follow this procedure after determining which figure illustrates your idler design:

- a. Hold the low idle adjustment screw (item 1) against the stop and adjust the low idle speed to 1850 ± 50 RPM.
- b. Stop engine.
- c. Loosen adjustment screws (items 2 and 3).
- d. Holding the low idle adjustment screw (item 1) against the stop, adjust idler solenoid approximately

$\frac{1}{16}$ " from the idler paddle. Retighten screws (items 2 and 3).

- e. Start engine and check idler operation.
- f. **CAUTION: DO NOT** attempt to loosen the governor clamping screw (item 4) located behind the idler paddle. Items 4 and 5 are used to adjust the engine governor but only in accordance with instructions contained in the Briggs & Stratton service shop manual.
- g. In some cases the leads on this assembly may be approximately 5 inches too long. Excess should be looped and taped.

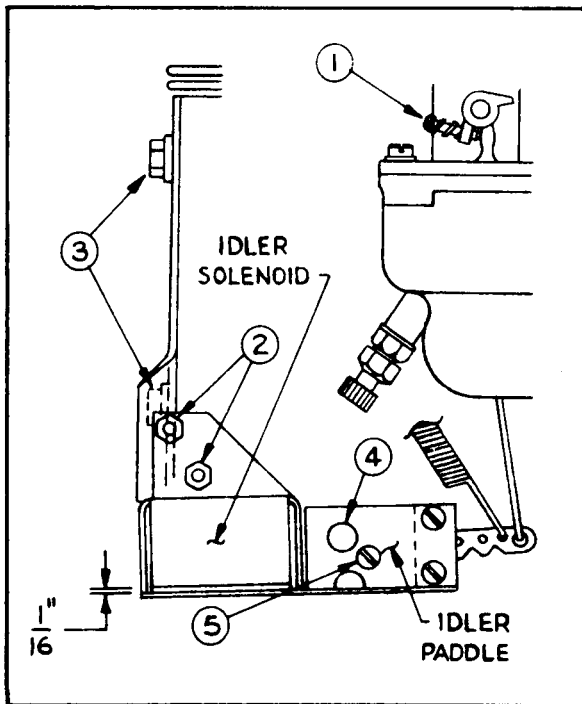


FIGURE 1 — Early Woldanpower models.

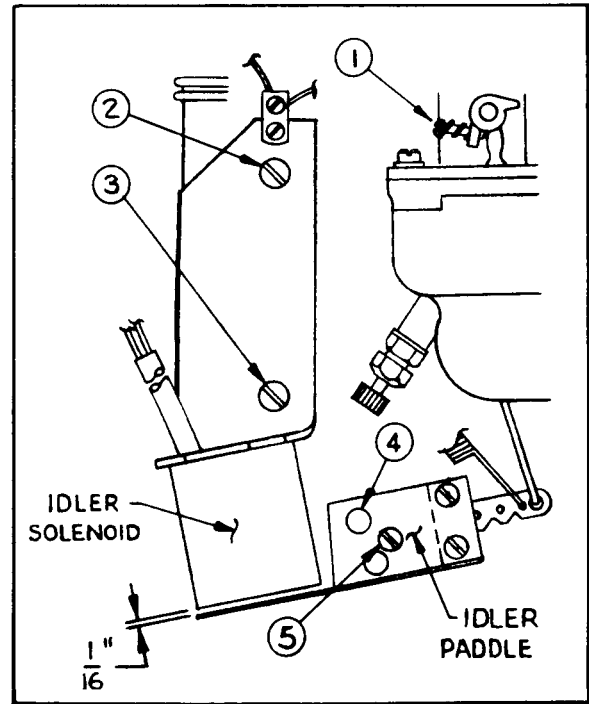


FIGURE 2 — Current Briggs and Stratton units.

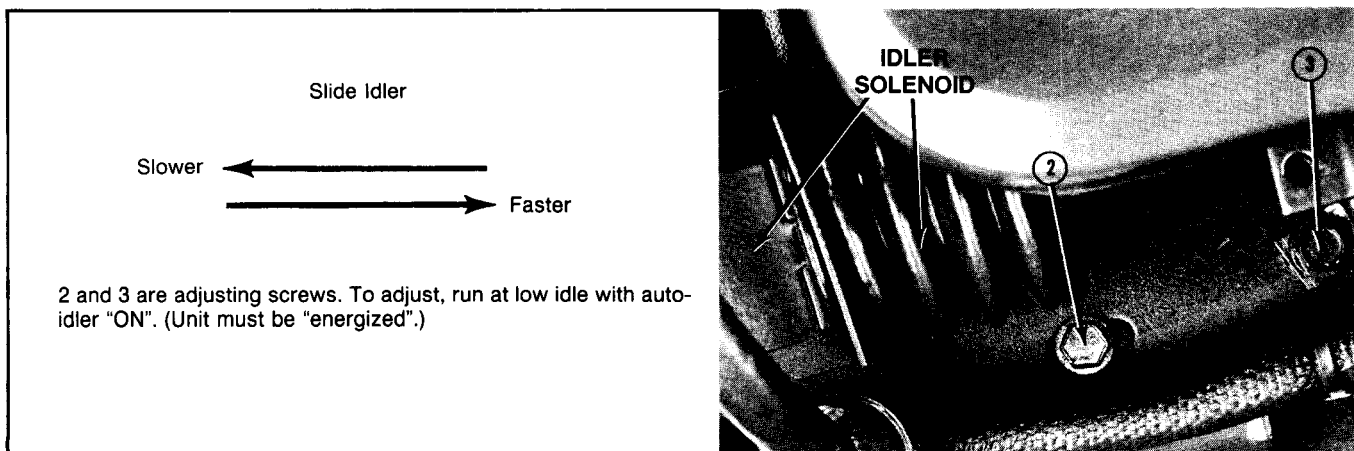
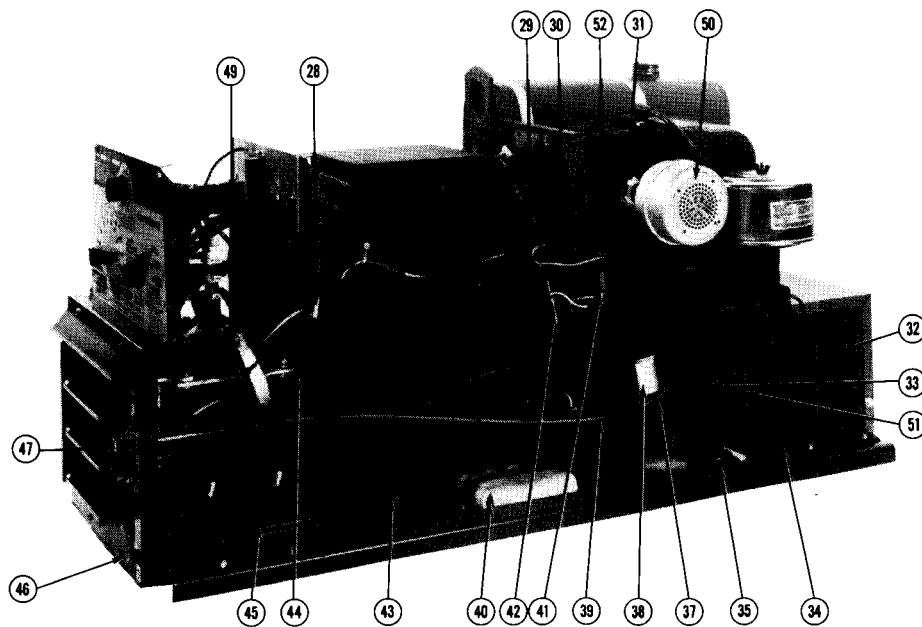
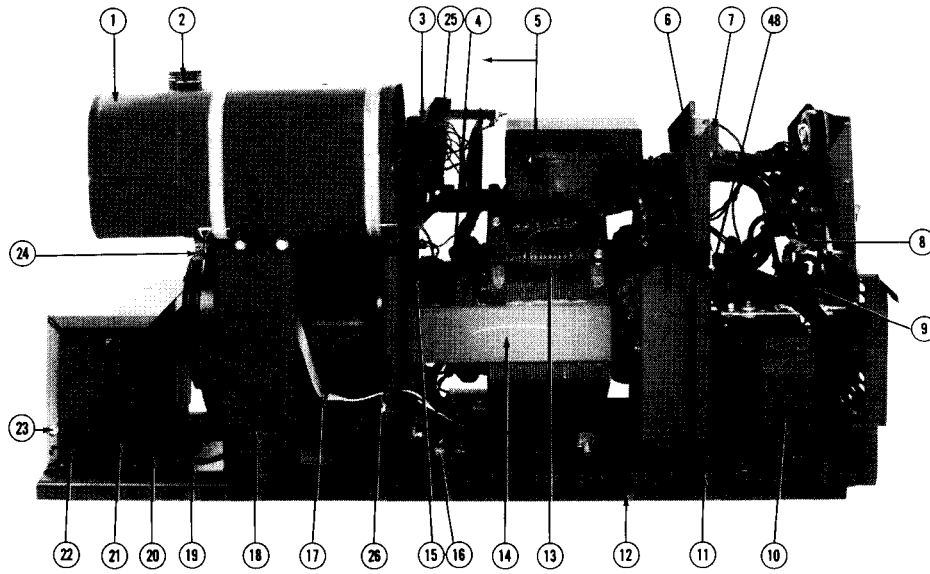


FIGURE 3 — Current Onan engine.

GENERAL ASSEMBLY (P-138-C)



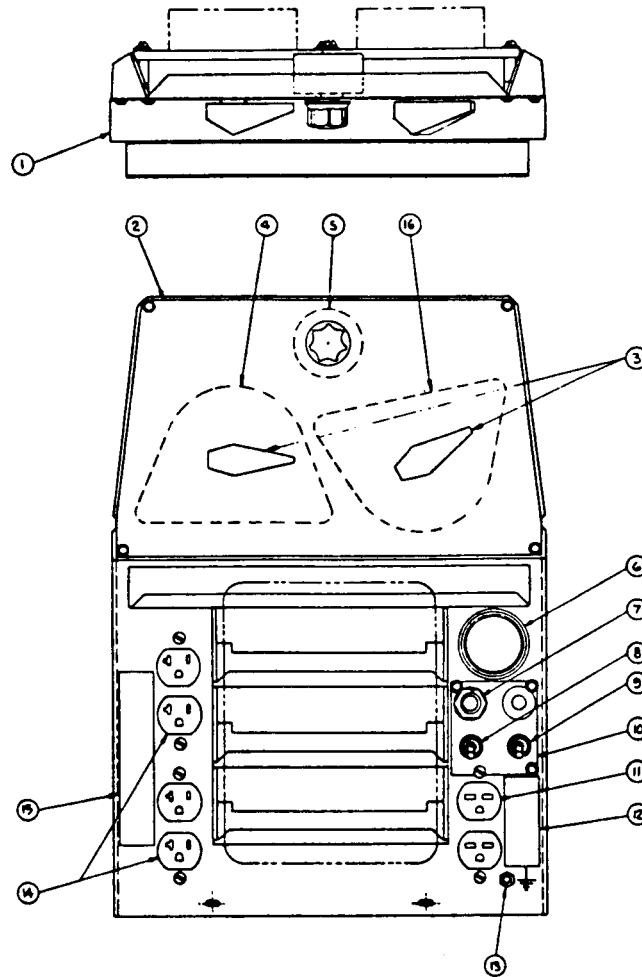
G-1744
5-16-86M

Parts List P-138-C

ITEM	PART NAME & DESCRIPTION	NO. REQ'D	ITEM	PART NAME & DESCRIPTION	NO. REQ'D
1	Fuel Tank Assembly	1	30	Battery Charger Printed Circuit Board	1
2	Fuel Tank Cap	1	31	Locknut — Muffler Mounting	1
3	Idler Printed Circuit Board	1	32	Negative Ground Decal And Caution Decal	1
4	Rotor Assembly (For Rotor Thru Bolt, See Item 44)	1	33	Mounting Clip — Choke Cable	1
	Rotor Coil	1	34	Negative Battery Cable	1
	Rotor Coil	1		Ground Strap	1
5	Reactor & Lift Bail Assembly, Includes:		35	Engine Mounting	2
	Reactor Coil	1	36	Idler Solenoid (Below Code 8700 Only)	1
	Lift Bail	1	37	Idler Paddle And Mounting Bracket	1
6	Baffle And Shroud Assembly	1	38	Idler Solenoid Assembly And Mounting Bracket	1
7	Air Baffle And Suppressor Assembly	1	39	Full Wave Bridge	1
8	Selector Switch Jumper	1	40	Capacitor	4
9	Rectifier Assembly, Includes:	1		Insulation — Capacitor Mounting	1
	Left Rectifier Half	1	41	Flashing Diode Assembly	1
	Right Rectifier Half	1		Diode Insulation	1
	Diode (Positive)	2	42	Brushholder Assembly	1
	Diode (Negative)	2		Brush	2
10	Choke Coil	1	43	Welder Frame Mounting	1
11	Case Back And Bottom	1	44	Blower	1
12	Base	1		Blower Key	1
13	Current Transformer	1		Bearing	1
14	Frame Assembly	1		Rotor Thru Bolt	1
15	Hex Head Cap Screw	4		Centering Washer	1
	Lockwasher	4		Lockwasher	1
16	Starter Solenoid	1	45	Output Stud Panel Assembly	1
17	Starter Lead	1	46	Case Front Panel Assembly	1
18	Fuel Tank Vertical Support	1	47	Choke Cable	1
19	Positive Battery Cable	1	48	Grommet	1
20	Battery Base	1	50	Muffler	1
21	Battery	1	52	Grommet	1
	Battery Bracket	1		Items Not Illustrated:	
	Carriage Bolt	2		Blocking Diode Assembly	
	Lockwasher	2		Case Wraparound	
22	Hex Nut	2		Warning Nameplate	
	Battery Case Sides	1		Lift Bail Seal	
23	Battery Case Cover	1		Lincoln Decal	
24	Fuel Line	1		Gasket — Case Back To Frame	
	Hose Clamp	2		Hi-Freq Adapter Kit	
25	Idler Transformer	1		Auxiliary Power Plug Kit	
26	Grommet	1		Fuse	
27	Suppressor Assembly (Now Part Of Item 7)	1		Fuse Block	
28	Grommet	1		Fuse Holder	
29	Resistor	1		Air Filter Element (Onan)	
	Round Head Screw	1		Air Filter Element Wrap (Onan)	
	Plain Washer	1		Oil Filter (Onan)	
	Lockwasher	1			
	Insulating Washer	2			
	Hex Nut	1			

2-20-87

CASE FRONT ASSEMBLY



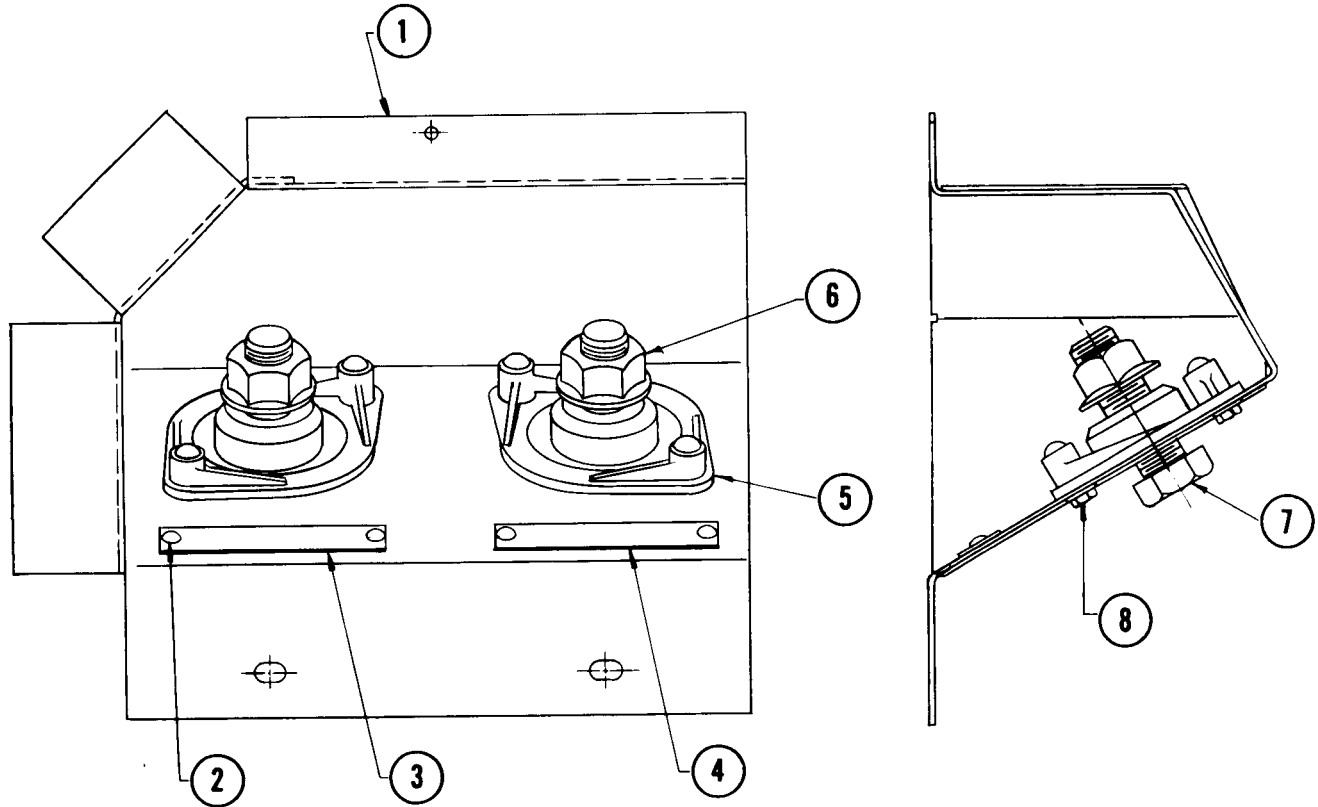
L-7043
5-10-85D

Parts List P-138-D

ITEM	PART NAME & DESCRIPTION	NO. REQ'D	ITEM	PART NAME & DESCRIPTION	NO. REQ'D
1	Case Front Welded Assembly	1	10	Engine Control Nameplate	1
2	Nameplate	1	11	Duplex Receptacle (230 V)	1
3	Handle — Selector Switch	1		Sems Screw	2
3	Handle — Arc Polarity Switch	1		Hex Nut	2
	Self Tapping Screw	2	12	Decal (230 V)	1
4	Selector Switch	1	13	Hex Nut	2
	Round Head Screw	2	14	Duplex Receptacle (115 V)	2
	Plain Washer	4		Sems Screw	4
	Lockwasher	2		Hex Nut	4
	Spacer	2	15	Decal (115 V)	1
	Round Head Screw	2	16	Arc Polarity Switch	1
	Plain Washer	4		Round Head Screw	2
	Hex Nut	2		Plain Washer	4
	Spacer	2		Lockwasher	2
5	Rheostat	1		Spacer	2
	Knob	1		Round Head Screw	2
6	Ammeter	1		Plain Washer	4
7	Starter Switch	1		Hex Nut	4
8	Ignition Switch	1		Spacer	2
9	Idler Switch	1			

4-3-86

OUTPUT STUD PANEL ASSEMBLY



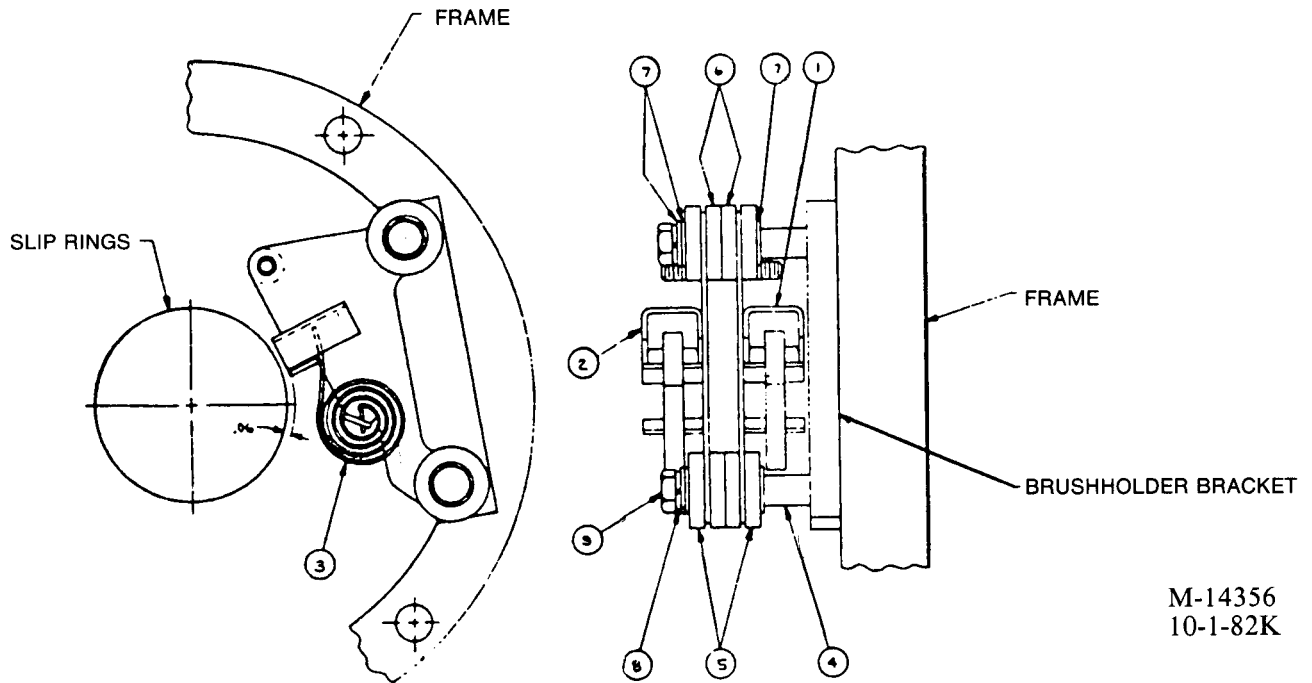
M-14060
8-29-86B

Parts List P-138-E

ITEM	PART NAME & DESCRIPTION	NO. REQ'D	ITEM	PART NAME & DESCRIPTION	NO. REQ'D
1	Panel Rivet	1	5	Output Terminal	1
2	Rivet	4	6	Output Stud Nut	1
3	Marker "To Work"	1	7	Hex Head Cap Screw	1
4	Marker "Electrode"	1	8	Self Tapping Screw	2
	Molded Output Stud Assembly, Includes:	2			

9-5-86

BRUSHHOLDER ASSEMBLY



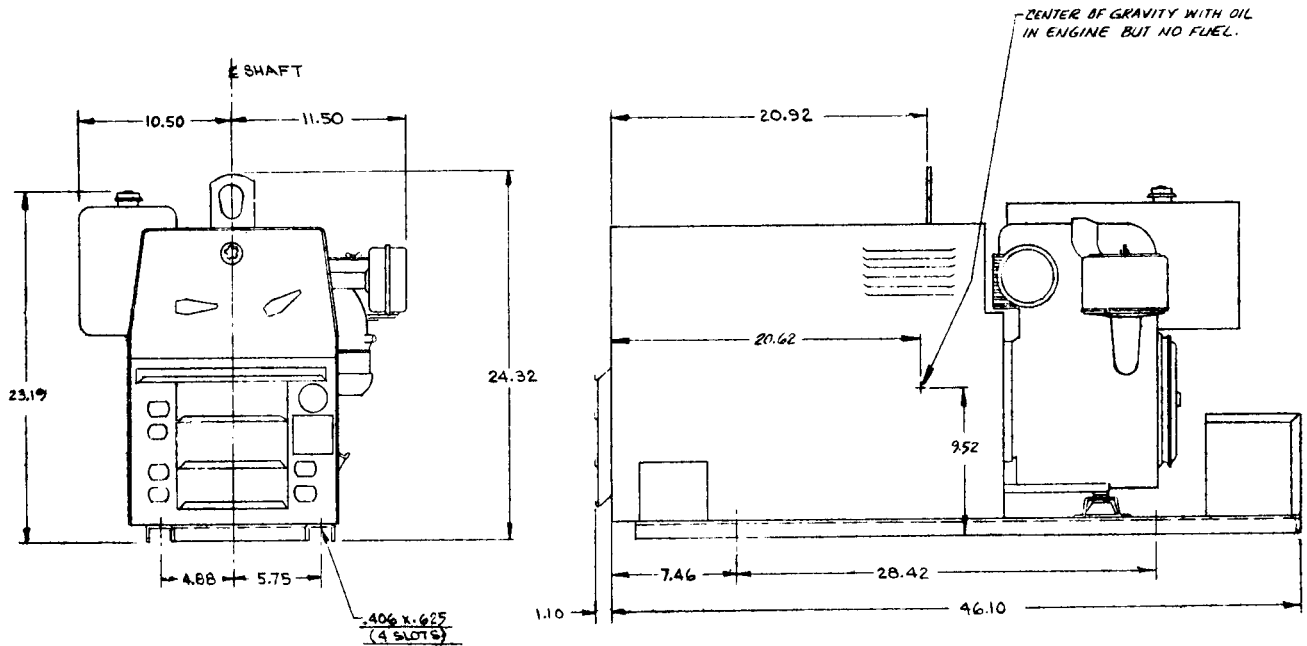
M-14356
10-1-82K

Parts List P-122-E

ITEM	PART NAME & DESCRIPTION	NO. REQ'D
1	Clockwise Brushholder	1
2	Counter Clockwise Brushholder	1
3	Brushholder Spring	2
4	Spacer	2
5	Insulator	4
6	Insulator	4
7	Plainwasher	6
8	Lockwasher	2
9	Hex Head Screw	2

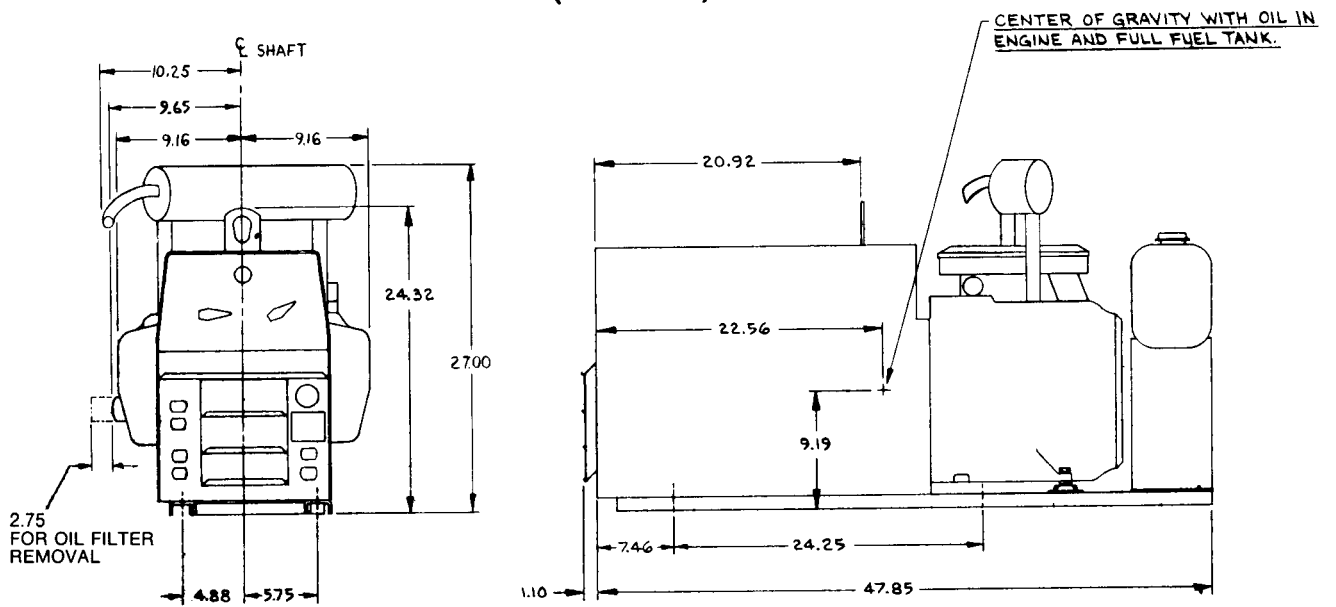
10-8-82

**WELDANPOWER AC/DC
DIMENSION PRINT — BRIGGS & STRATTON ENGINE
(In Inches)**



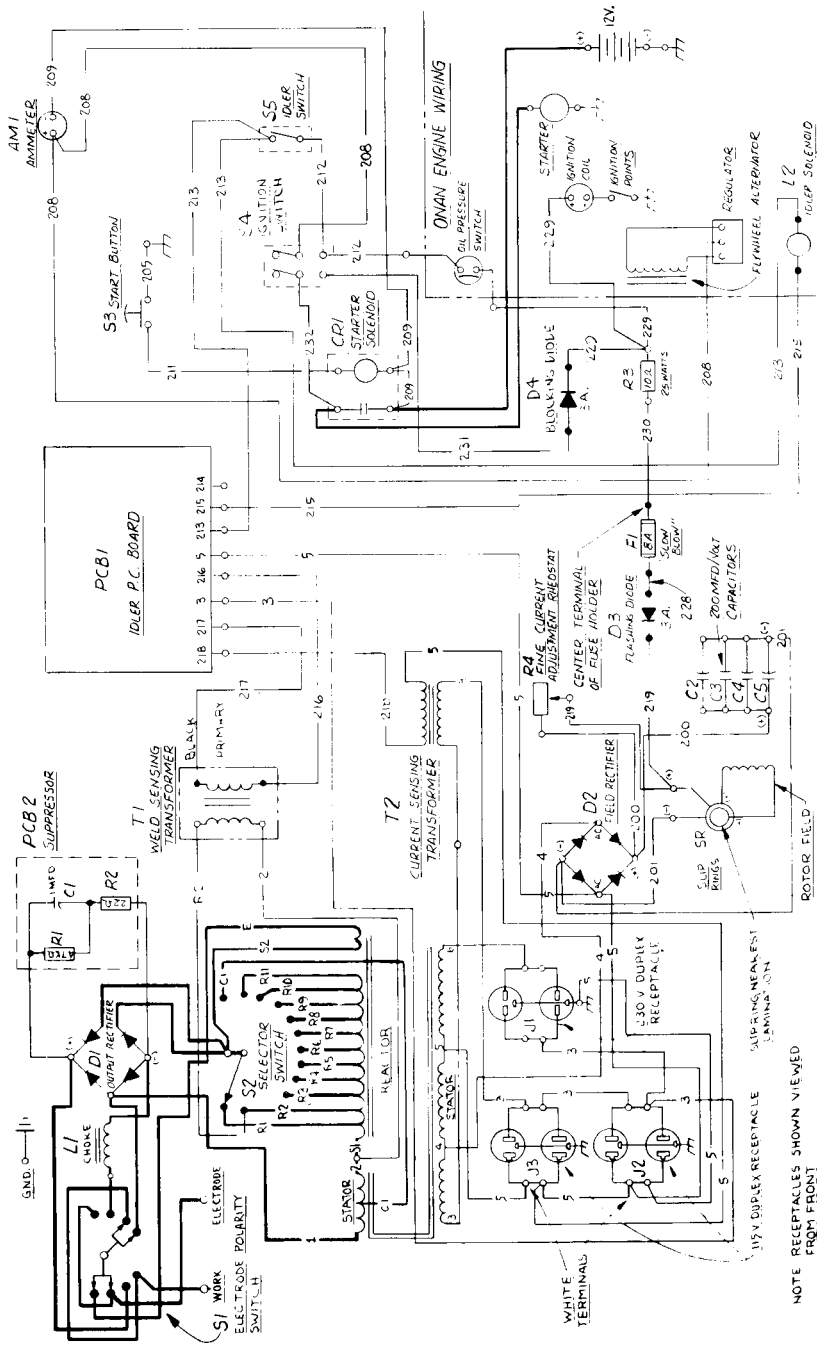
M-14152
8-1-85P

**DIMENSION PRINT — ONAN ENGINE
(In Inches)**



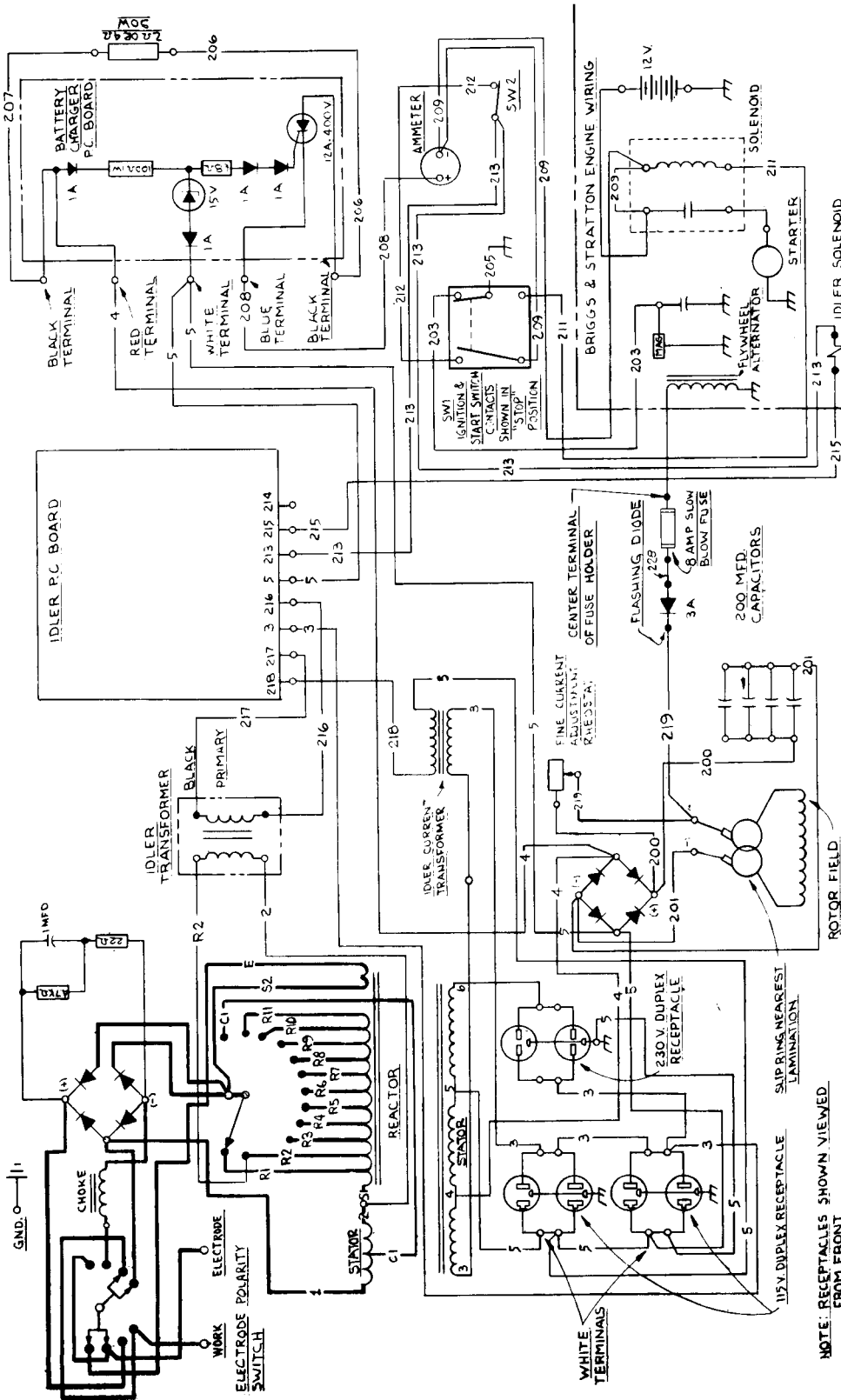
M-15278
2-20-87G

WIRING DIAGRAM Onan Engine Weldanpower AC/DC (With CV Tap)



NOTE: This diagram is for reference only. It is not accurate for all machines covered by this manual. The specific diagram for a particular code is pasted inside the machine on one of the enclosure panels. If the diagram is illegible, write to the Service Department for a replacement. Give the welder code number.

WIRING DIAGRAM Briggs and Stratton Weldanpower AC/DC (With CV Tap)



NOTE: RECEPTACLES SHOWN VIEWED FROM FRONT

ELECTRICAL SYMBOLS PER E-1537

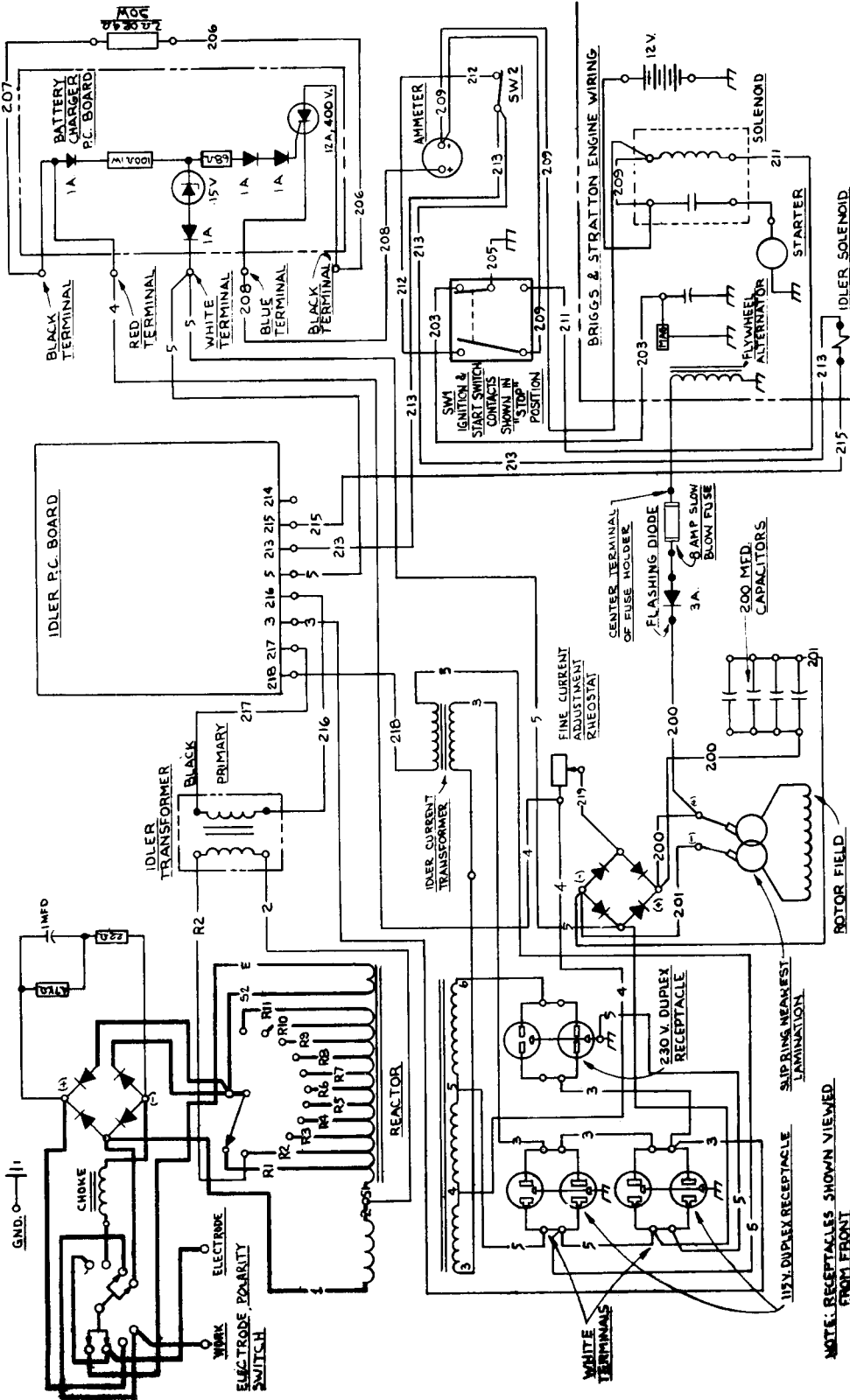
NOTE: This diagram is for reference only. It is not accurate for all machines covered by this manual. The specific diagram for a particular code is pasted inside the machine on one of the enclosure panels. If the diagram is illegible, write to the Service Department for a replacement. Give the welder code number.

M-15069
1-15-88D

WIRING DIAGRAM

Briggs and Stratton

Weldanpower AC/DC (With Electric Start)



NOTE: RECEPTACLES SHOWN VIEWED FROM FRONT

ELECTRICAL SYMBOLS PER E-1537

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HOW TO ORDER REPLACEMENT PARTS

Order parts only from Lincoln offices or from the Authorized Field Service Shops listed in the "Service Directory". Give the following information:

- (a) From the nameplate — machine model, code and serial numbers.
- (b) From this manual — complete part name and description,

item number, quantity required and the number of the list used to get this information.

Any items indented in the "Parts Name" column are included in the assembly under which they are listed. The indented items may be ordered separately. If the entire assembly is needed, do **not** order the indented parts.

GUARANTEE

The Lincoln Electric Company, the Seller, warrants all new equipment except engines and accessories thereof against defects in workmanship and material for a period of one year from date of shipment, provided the equipment has been properly cared for, and operated under normal conditions. Engines and engine accessories are warranted free from defects for a period of ninety days from the date of shipment.

If the Buyer gives the Seller written notice of any defects in equipment or electrode or flux within any period of warranty and the Seller's inspection confirms the existence of such defects, then the Seller shall correct the defect or defects at its option, either by repair or replacement F.O.B. its own factory or other place as designated by the Seller. The remedy provided Buyer herein for breach of Seller's warranty shall be exclusive.

No expense, liability or responsibility will be assumed by the Seller for repairs made outside of the Seller's factory without

written authority from the Seller.

The Seller shall not be liable for any consequential damages in case of any failure to meet the conditions of any warranty. The liability of the Seller arising out of the supplying of said equipment or electrode or its use by the Buyer, whether on warranties or otherwise shall not in any case exceed the cost of correcting defects in the equipment or replacing defective electrode in accordance with the above guarantee. Upon the expiration of any period of warranty, all such liability shall terminate.

The foregoing guarantees and remedies are exclusive and except as above set forth. There are no guarantees or warranties with respect to engines, accessories, equipment, electrodes, or flux, either express or arising by operation of law or trade usage or otherwise implied, including without limitation the warranty of merchantability, all such warranties being waived by the Buyer.

WARRANTY SUPERSEDED

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Cleveland, Ohio 44117-1199

and ask for bulletin ED-80 or call 216-481-8100 and ask for the Welding School Registrar.

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ELECTRIC**®

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