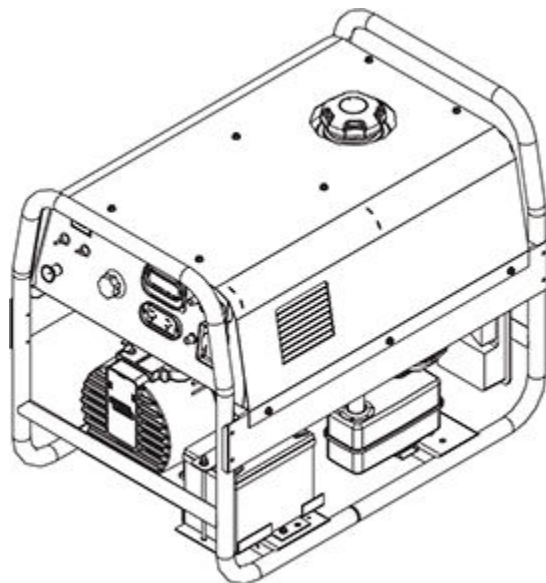


# INSTRUCTION MANUAL

# OUTBACK™ 185



For use with Product/Code  
Numbers:

11731, 12472



Register your machine:  
[www.lincolnelectric.com/register](http://www.lincolnelectric.com/register)

Authorized Service and Distributor  
Locator:  
[www.lincolnelectric.com/locator](http://www.lincolnelectric.com/locator)

### Save for future reference

Date Purchased

Code: (ex: 10859)

Serial: (ex: U1060512345)



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# SAFETY

**THANK YOU FOR SELECTING A QUALITY PRODUCT BY LINCOLN ELECTRIC**



**PLEASE EXAMINE CARTON AND EQUIPMENT FOR DAMAGE IMMEDIATELY**



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 welding and cutting 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 MANUAL AND THE SAFETY PRECAUTIONS CONTAINED THROUGHOUT.** And, most importantly, think before you act and be careful.

 <b>DANGER</b>	
	This statement indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

 <b>WARNING</b>	
	This statement indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

 <b>CAUTION</b>	
	This statement indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

**Notice:** This statement indicates the possibility of damage to equipment if the potential risk is not avoided.

## KEEP YOUR HEAD OUT OF THE FUMES



- **DON'T** get too close to the weld. Use corrective lenses if necessary to stay a reasonable distance away from the weld.
- **USE ENOUGH VENTILATION** or exhaust at the weld, or both, to keep the fumes and gases from your breathing zone and the general area.
- **IN A LARGE ROOM OR OUTDOORS**, natural ventilation may be adequate if you keep your head out of the fumes.
- **USE NATURAL DRAFTS** or fans to keep the fumes away from your face. If you develop unusual symptoms, see your supervisor.
- **READ** and obey the Safety Data Sheet (SDS) and the warning label that appears on all containers of welding materials.

Perhaps the welding atmosphere and ventilation system should be checked.

## WEAR CORRECT EYE, EAR AND BODY PROTECTION



- **PROTECT** your eye and face with properly fitted and with proper grade of filter plate (See ANSI Z49.1).
- **PROTECT** your body from welding spatter and arc flash with protective clothing including woolen clothing, Flame-proof apron and gloves, leather leggings, and high boots.
- **PROTECT** others from splatter, flash, and glare with protective screens or barriers.
- **PROTECT** your eyes and face with welding helmet
- **IN SOME AREAS**, protection from noise may be appropriate.
- **BE SURE** protective equipment is in good condition.
- **AT ALL TIMES**, wear safety glasses in work area.







- **DO NOT WELD OR CUT** containers or materials which previously had been in contact with hazardous substances unless they are properly cleaned. This is extremely dangerous.
- **DO NOT WELD OR CUT** painted or plated parts unless special precautions with ventilation have been taken. They can release highly toxic fumes or gases.
- **PROTECT** compressed gas cylinders from excessive heat, mechanical shocks, and arcs; fasten cylinders so they cannot fall.
- **BE SURE** cylinders are never grounded or part of an electrical circuit.
- **REMOVE** all potential fire hazards from welding area.



- **ALWAYS HAVE FIRE FIGHTING EQUIPMENT READY FOR IMMEDIATE USE AND KNOW HOW TO USE IT.**

**CALIFORNIA PROPOSITION 65 WARNINGS**

 <b>WARNING</b>	
	<p>Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects, or other reproductive harm.</p> <p>Always start and operate the engine in a well-ventilated area.</p> <p>If in an exposed area, vent the exhaust to the outside.</p> <p>Do not modify or tamper with the exhaust system.</p> <p>Do not idle the engine except as necessary.</p>

 <b>WARNING</b>	
	<p>This product, when used for welding or cutting, produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health &amp; Safety Code § 25249.5 et seq.)</p> <p>For more information go to <a href="http://www.P65warnings.ca.gov/diesel">www.P65warnings.ca.gov/diesel</a></p>

**ARC WELDING CAN BE HAZARDOUS**

**PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH. KEEP CHILDREN AWAY. PACEMAKER WEARERS SHOULD CONSULT WITH THEIR DOCTOR BEFORE OPERATING.**

Read and understand the following safety highlights. For additional safety 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 or CSA Standard W117.2. A Free copy of "Arc Welding Safety" booklet E205 is available from the Lincoln Electric Company, 22801 St. Clair Avenue, Cleveland, Ohio 44117-1199.

**BE SURE THAT ALL INSTALLATION, OPERATION, MAINTENANCE AND REPAIR PROCEDURES ARE PERFORMED ONLY BY QUALIFIED INDIVIDUALS.**

**FOR ENGINE POWERED EQUIPMENT**



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



- 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.



- 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.
- 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.
- **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.
- 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.



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



- Generator exhaust contains carbon monoxide. This is a poison you cannot see or smell.
- Using a generator indoors **CAN KILL YOU IN MINUTES.**
- **NEVER** use inside a home or garage, **EVEN IF** doors and windows are open.
- **ONLY** use **OUTSIDE** and far away from windows, doors and vents.



- Avoid other generator hazards. **READ MANUAL BEFORE USE.**

---

## ELECTRIC AND MAGNETIC FIELDS MAY BE DANGEROUS



- Electric current flowing through any conductor causes localized Electric and Magnetic Fields (EMF). Welding current creates EMF fields around welding cables and welding machines.
  - EMF fields may interfere with some pacemakers, and welders having a pacemaker should consult their physician before welding.
  - Exposure to EMF fields in welding may have other health effects which are now not known.
- All welders should use the following procedures in order to minimize exposure to EMF fields from the welding circuit:

- Route the electrode and work cables together - Secure them with tape when possible.
- Never coil the electrode lead around your body.
- Do not place your body between the electrode and work cables. If the electrode cable is on your right side, the work cable should also be on your right side.
- Connect the work cable to the workpiece as close as possible to the area being welded.
- Do not work next to welding power source.

---

## ELECTRIC SHOCK CAN KILL



- 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.

- Insulate yourself from work and ground using dry insulation. Make certain the insulation is large enough to cover your full area of physical contact with work and ground.

**In addition to the normal safety precautions, if welding must be performed under electrically hazardous conditions (in damp locations or while wearing wet clothing; on metal structures such as floors, gratings or scaffolds; when in cramped positions such as sitting, kneeling or lying, if there is a high risk of unavoidable or accidental contact with the workpiece or ground) use the following equipment:**

- Semiautomatic DC Constant Voltage (Wire) Welder.
- DC Manual (Stick) Welder.
- AC Welder with Reduced Voltage Control.
- In semiautomatic or automatic wire welding, the electrode, electrode reel, welding head, nozzle or semiautomatic welding gun are also electrically "hot".
- 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.
- Ground the work or metal to be welded to a good electrical (earth) ground.
- Maintain the electrode holder, work clamp, welding cable and welding machine in good, safe operating condition. Replace damaged insulation.
- Never dip the electrode in water for cooling.
- 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.
- When working above floor level, use a safety belt to protect yourself from a fall should you get a shock.
- **Also see [WELDING AND CUTTING SPARKS CAN CAUSE FIRE OR EXPLOSION](#) on page -viii and [FOR ELECTRICALLY POWERED EQUIPMENT](#) on page -ix**

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## ARC RAYS CAN BURN



- 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.

- Use suitable clothing made from durable flame-resistant material to protect your skin and that of your helpers from the arc rays.
- 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

1.



- 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 hardfacing (see instructions on container or SDS) or on lead or cadmium plated steel and other metals or coatings which produce highly toxic fumes, keep exposure as low as possible and within applicable OSHA PEL and ACGIH TLV limits using local exhaust or mechanical ventilation unless exposure assessments indicate otherwise. In confined spaces or in some circumstances, outdoors, a respirator may also be required. Additional precautions are also required when welding on galvanized steel.**

2. The operation of welding fume control equipment is affected by various factors including proper use and positioning of the equipment, maintenance of the equipment and the specific welding procedure and application involved. Worker exposure level should be checked upon installation and periodically thereafter to be certain it is within applicable OSHA PEL and ACGIH TLV limits.
3. 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.

4. Shielding gases used for welding can displace air and cause injury or death. Always use enough ventilation, especially in confined areas, to insure breathing air is safe.
5. Read and understand the manufacturer's instructions for this equipment and the consumables to be used, including the Safety Data Sheet (SDS) and follow your employer's safety practices. SDS forms are available from your welding distributor or from the manufacturer.
6. Also see [FOR ENGINE POWERED EQUIPMENT](#) on page -v

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## WELDING AND CUTTING SPARKS CAN CAUSE FIRE OR EXPLOSION



- 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. Avoid welding near hydraulic lines. Have a fire extinguisher readily available.
- 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.
- 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.
- 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** from the American Welding Society

- Vent hollow castings or containers before heating, cutting or welding. They may explode.
- Sparks and spatter are thrown from the welding arc. Wear oil free protective garments such as leather gloves, heavy shirt, cuff-less 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.
- 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.
- **Read and follow NFPA 51B** "Standard for Fire Prevention During Welding, Cutting and Other Hot Work", available from NFPA, 1 Batterymarch Park, PO box 9101, Quincy, MA 022690-9101.
- **DO NOT** use a welding power source for pipe thawing.

---

## CYLINDER MAY EXPLODE IF DAMAGED



- 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.
- Always keep cylinders in an upright position securely chained to an undercarriage or fixed support.

### 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.
- Never allow the electrode, electrode holder or any other electrically "hot" parts to touch a cylinder.



- Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.
- Valve protection caps should always be in place and hand tight except when the cylinder is in use or connected for use.
- 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, 14501 George Carter Way Chantilly, VA 20151.

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### **ADDITIONAL SAFETY INFORMATION**

**Refer to <http://www.lincolnelectric.com/safety> for additional safety information**

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### **FOR ELECTRICALLY POWERED EQUIPMENT**



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

SAFETY

# INSTALLATION



## TECHNICAL SPECIFICATIONS



OUTBACK™ 185 (K2706-2)



INPUT - GASOLINE ENGINE					
MAKE/MODEL	DESCRIPTION	SPEED (RPM)	DISPLACEMENT	IGNITION SYSTEM	CAPACITIES
KOHLER CH440	1 CYLINDER	3750 RPM HIGH IDLE	26.2 CU. IN. (429 CC)	ELECTRIC & RECOIL START; MANUAL CHOKE	FUEL: 6.8 GAL. (25.7L) OIL: 1.2 QTS. (1.1L)
	4 CYCLE AIR-COOLED OHV GASOLINE		<b>BORE X STROKE</b>		
	14HP @ 3600 RPM	2250 RPM LOW IDLE	3.50" X 2.70" (89 MM X 69 MM)		
	ALUMINIUM BLOCK W/CAST IRON SLEEVE	3400 RPM FULL LOAD			
RATED OUTPUT - WELDER					
AMPS @ DC CONSTANT CURRENT		DUTY CYCLE		VOLTS @ RATED AMPERES	
100		100%		25	
130		60%		25	
150		20%		25	
185		MAX OUTPUT		--	
OUTPUT - WELDER AND GENERATOR					
WELDING RANGES		WELDING OPEN CIRCUIT VOLTAGE		AC AUXILIARY POWER	
50 - 185 AMPS DC		80 VDC MAX.		4600 WATTS 115V 1PH 100% DUTY CYCLE 5700 PEAK WATTS 5200 CONTINUOUS WATTS 120V / 230V 1PH	
PHYSICAL DIMENSIONS					
HEIGHT	WIDTH	DEPTH	WEIGHT		
25.62 IN. 651 MM	21.77 IN. 553 MM	31.48 IN. 800 MM	295.0 LBS. 133.8 KG		
OPERATING TEMPERATURE RANGE			STORAGE TEMPERATURE RANGE		
0° F TO 104° F (-18° C TO 40° C)			-40° F TO 131° F (-40° C TO 55° C)		



## SAFETY PRECAUTIONS

Read this entire installation section before you start installation.

 <b>WARNING</b>	
	Do not attempt to use this equipment until you have thoroughly read all operating and maintenance manuals supplied with your machine. They include important safety precautions, detailed engine starting, operating and maintenance instructions, and parts lists.

 <b>WARNING</b>	
	<p>ELECTRIC SHOCK can kill.</p> <p>Do not touch electrically live parts or electrode with skin or wet clothing.</p> <p>Insulate yourself from work and ground.</p> <p>Always wear dry insulating gloves.</p>

 <b>WARNING</b>	
	<p>ENGINE EXHAUST can kill.</p> <p>Use in open, well ventilated areas or vent exhaust outside.</p> <p>Do not stack anything on or near the engine.</p>

 <b>WARNING</b>	
	<p>MOVING PARTS can injure.</p> <p>Do not operate with doors open or guards off.</p> <p>Stop engine before servicing.</p> <p>Keep away from moving parts.</p>

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

---

### LOCATION AND VENTILATION

Whenever you use the OUTBACK™ 185, be sure that clean cooling air can flow around the machine's gasoline engine and the generator. Avoid dusty, dirty areas. Also, keep the machine away from heat sources. Do not place the back end of the generator anywhere near hot engine exhaust from another machine. And of course, make sure that engine exhaust is ventilated to an open, outside area.

The OUTBACK™ 185 must be used outdoors. Do not set the machine in puddles or otherwise submerge it in water. Such practices pose safety hazards and cause improper operation and corrosion of parts.

Always operate the OUTBACK™ 185 with the case roof on and all machine components completely assembled. This will help to protect you from the dangers of moving parts, hot metal surfaces, and live electrical devices.

---

**STORING**

1. Store the machine in a cool, dry place when it is not in use. Protect it from dust and dirt. Keep it where it can not be accidentally damaged from construction activities, moving vehicles and other hazards.
2. If you will be storing the machine for over 30 days, you should drain the fuel to protect fuel system and carburetor parts from gum deposits. Empty all fuel from the tank and run the engine until it stops from lack of fuel.
3. You can store the machine for up to 24 months if you use a stabilizing Additive in the fuel system. Mix the additive with the fuel in the tank and run the engine for a short time to circulate the additive through the carburetor.
4. While the engine is still warm, drain the oil and refill with fresh 10W30 oil.
5. Remove the spark plug and pour approximately 1/2 ounce (15ml) of engine oil into the cylinder. Replace the spark plug and crank the engine slowly to distribute the oil.
6. Clean any dirt and debris from the cylinder and cylinder head fins and housing, rotating screen, and muffler areas.
7. Store in a clean, dry area.

---

**STACKING**

OUTBACK™ 185 machines CANNOT be stacked.

---

**TILTING**

Place the machine on a secure, level surface whenever you use it or store it. Any surfaces you place it on other than the ground must be firm, non-skid, and structurally sound.

The gasoline engine is designed to run in a level position for best performance. It can operate at an angle, but this should never be more than 15 degrees in any direction. If you do operate it at a slight angle, be sure to check the oil regularly and keep the oil level full. Also, fuel capacity will be a little less at an angle.

---



**LIFTING**





The OUTBACK™ 185 should be lifted by two people. (See Specification section for weight). The LowLift™ grab bars on both ends make lifting easier.

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**PRE-OPERATION ENGINE SERVICE**

Read and understand the engine operating and maintenance instructions supplied with this machine before you operate the OUTBACK™ 185.

 <b>WARNING</b>	
	<p>Keep hands away from muffler or HOT engine parts.</p> <p>Stop the engine when fueling.</p> <p>Do not smoke when fueling.</p> <p>Remove fuel cap slowly to release pressure.</p> <p>Do not overfill tank.</p> <p>Wipe up spilled fuel and allow fumes to clear before starting engine.</p> <p>Keep sparks and flame away from tank.</p>

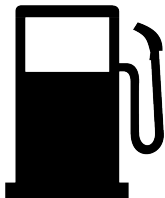
 <b>WARNING</b>		GASOLINE FUEL ONLY	
 <p><b>GASOLINE</b> can cause fire or explosion</p>	<ul style="list-style-type: none"> <li>• Stop engine when fueling.</li> <li>• Do not smoke when fueling.</li> <li>• Keep sparks and flame away from tank.</li> <li>• Do not leave unattended while fueling.</li> <li>• Wipe up spilled fuel and allow fumes to clear before starting engine.</li> <li>• Do not overfill tank, fuel expansion may cause overflow.</li> <li>• Close fuel shut off valve when transporting or not operating machine.</li> </ul>	 <p><b>ENGINE EXHAUST</b> can kill</p>	<ul style="list-style-type: none"> <li>• Use in open, well ventilated area or vent exhaust outside.</li> </ul>
		 <p><b>MOVING PARTS</b> can injure</p>	<ul style="list-style-type: none"> <li>• Keep away from moving parts.</li> <li>• Do not operate with panels open or guards off.</li> </ul>
		S19799	VM

**OIL**



The OUTBACK™ 185 is shipped with the engine filled with SAE 10W30 oil. **CHECK THE OIL LEVEL BEFORE YOU START THE ENGINE.** This is an added precaution. Do not screw in dipstick when checking oil level. **DO NOT OVERFILL.** Be sure the fill plug is tight after servicing.

**FUEL**



Fill the fuel tank with clean, fresh, regular grade (minimum 87 octane lead free gasoline. **DO NOT MIX OIL WITH GAS.** The OUTBACK™ 185 capacity is approximately 6.3 gallons (23.85 Liter). **DO NOT OVERFILL.** The fuel level should be kept 3/4" below the bottom of the filler neck to allow room in the fuel tank for fuel expansion.

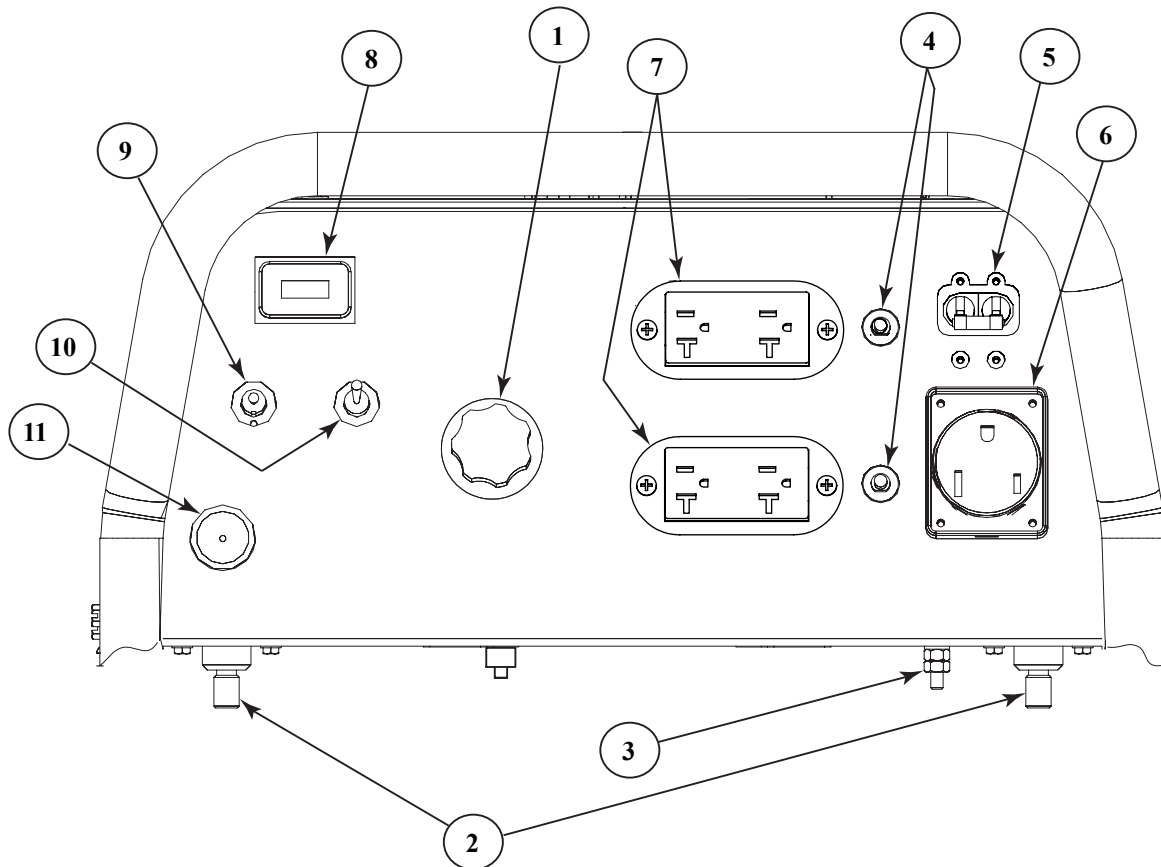
**SPARK ARRESTER**

Some federal, state or local laws may require gasoline engines to be equipped with exhaust spark arresters when they are operated in certain locations where unarrested sparks may present a fire hazard. The standard muffler included with this machine comes equipped with a spark arrester.

 <b>CAUTION</b>	
	<p>An incorrect additional arrester may lead to damage to the engine or adversely affect performance.</p>

---

**ELECTRICAL OUTPUT CONNECTIONS**



**Figure 1: Case Front Controls**

- 1. CURRENT CONTROL DIAL
- 2. WELD OUTPUT TERMINALS (2)
- 3. GROUND STUD
- 4. CIRCUIT BREAKERS (2) - 20 AMP
- 5. CIRCUIT BREAKER 30 AMP
- 6. RECEPTACLE - 240 VOLT, 50 AMP
- 7. DUPLEX RECEPTACLE (2)- 120 VOLT, 20 AMP
- 8. HOURMETER
- 9. ENGINE SWITCH
- 10.HIGH/AUTO IDLE
- 11.CHOKE

See [Figure 1: Case Front Controls](#) on page -5 for the location of the current control dial, weld output terminals, ground stud, circuit breakers, 240 and 120 volt receptacles.

---

**WELDING CABLE CONNECTIONS**

**Cable Size and Length**

## INSTALLATION

Be sure to use welding cables that are large enough. The correct size and length becomes especially important when you are welding at a distance from the welder.

[Table 1: RECOMMENDED WELDING CABLE SIZE AND LENGTH](#) on page -6 lists recommended cable sizes and lengths for rated current and duty cycle. Length refers to the distance from the welder to the work and back to the welder. Cable diameters are increased for long cable lengths to reduce voltage drops.


**Table 1: RECOMMENDED WELDING CABLE SIZE AND LENGTH**


TOTAL COMBINED LENGTH OF ELECTRODE AND WORK CABLES	
CABLE LENGTH	125 Amps 30% Duty Cycle
0-50 ft (0-15 m)	6 AWG
50-100 ft (15-30 m)	5 AWG
100-150 ft (30-46 m)	3 AWG
150-200 ft (46-61 m)	2 AWG
200-250 ft (61-76 m)	1 AWG

### Cable Installation

Install the welding cables to your OUTBACK™ 185 as follows. See [Figure 1: Case Front Controls](#) on page -5 for the location of parts.

1. The gasoline engine must be OFF to install welding cables.
2. Remove the 1/2-13 flanged nuts from the output terminals.
3. Connect the electrode holder and work cables to the weld output terminals. Normally, the electrode cable is connected to the positive (+) output stud.
4. Tighten the flanged nuts securely.
5. Be certain that the metal piece you are welding (the “work”) is securely connected to the work clamp and cable.
6. Check and tighten the connections periodically.

 **CAUTION**



Loose connections will cause the output studs to overheat and the studs may eventually melt.

Do not cross welding cables at output stud connection. Keep isolated and separate from one another.

Lincoln Electric offers a welding accessory kit with #6 welding cables. See the [ACCESSORIES AND OPTIONS](#) on page -1 section of this manual for more information.

For more information on welding , see [WELDING OPERATION](#) on page B-7 in the [OPERATION](#) on page -1 section of this manual.

---

## MACHINE GROUNDING



To prevent dangerous electric shock, other equipment to which this engine driven welder supplies power, must:

- a) be grounded to the frame of the welder using a grounded type plug
- or
- b) be double insulated



When this welder is mounted on a truck or trailer, the machine grounding stud must be securely connected to the metal frame of the vehicle.

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 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 U.S. National Electrical Code lists a number of alternate means of grounding electrical equipment. A machine grounding stud marked with the symbol is provided on the front of the welder.

 <b>WARNING</b>	
	DO NOT GROUND MACHINE TO A PIPE WHICH CARRIES EXPLOSIVE OR COMBUSTIBLE MATERIAL.

### PLUGS AND HAND HELD EQUIPMENT

For further protection against electric shock, any electrical equipment connected to the generator receptacles must use a three-blade, grounded type plug or an Underwriter’s Laboratories (UL) approved double insulated tool with a two blade plug.

 <b>WARNING</b>	
	Never operate this machine with damaged or defective cords. All electrical equipment must be in safe operating condition.

### AUXILIARY POWER RECEPTACLES

The control panel of the OUTBACK™ 185 features three auxiliary power receptacles:

- Two 20 amp, 120 volt duplex (double outlet) receptacle.
- A 50 amp, 240 volt single outlet receptacle.

See [Figure 1: Case Front Controls](#) on page -5

Through these receptacles the machine can supply up to 5700 watts surge or 5200 watts continuous of single- phase 60 Hertz AC power. The machine output voltages meet UL standards and fall within ± 10% of the rated voltage.


### CIRCUIT BREAKERS



Auxiliary power is protected by circuit breakers. When the machine is operated in high temperature environments, the breakers may tend to trip at lower loads than normally.

 <b>CAUTION</b>	
	NEVER BYPASS THE CIRCUIT BREAKERS. WITHOUT OVERLOAD PROTECTION, THE UNIT COULD OVERHEAT AND/OR CAUSE DAMAGE TO THE EQUIPMENT BEING USED.

**ELECTRICAL DEVICES USED WITH THE OUTBACK™ 185**

<b>⚠ CAUTION</b>	
	Certain electrical devices cannot be powered by the OUTBACK™ 185. See <a href="#">Table 2: ELECTRICAL DEVICE USE WITH THE OUTBACK 185</a> on page -8.

**Table 2: ELECTRICAL DEVICE USE WITH THE OUTBACK™ 185**

TYPE	COMMON ELECTRICAL DEVICES	POSSIBLE CONCERNS
RESISTIVE	HEATERS, TOASTERS, INCANDESCENT LIGHT BULBS, ELECTRIC RANGE, HOT PAN, SKILLET, COFFEE MAKER.	NONE
CAPACITIVE	TV SETS, RADIOS, MICROWAVES, APPLIANCES WITH ELECTRICAL CONTROL.	VOLTAGE SPIKES OR HIGH VOLTAGE REGULATION CAN CAUSE THE CAPACITIVE ELEMENTS TO FAIL. SURGE PROTECTION, TRANSIENT PROTECTION, AND ADDITIONAL LOADING IS RECOMMENDED FOR 100% FAIL-SAFE OPERATION. DO NOT RUN THESE DEVICES WITHOUT ADDITIONAL RESISTIVE TYPE LOADS.
INDUCTIVE	SINGLE-PHASE INDUCTION MOTORS, DRILLS, WELL PUMPS, GRINDERS, SMALL REFRIGERATORS, WEED AND HEDGE TRIMMERS.	THESE DEVICES REQUIRE LARGE CURRENT INRUSH FOR STARTING. (SEE TABLE B.3, GENERATOR POWER APPLICATIONS, IN THE OPERATION SECTION OF THIS MANUAL FOR REQUIRED STARTING WATTAGES.) SOME SYNCHRONOUS MOTORS MAY BE FREQUENCY SENSITIVE TO ATTAIN MAXIMUM OUTPUT TORQUE, BUT THEY SHOULD BE SAFE FROM ANY FREQUENCY INDUCED FAILURES.
CAPACITIVE / INDUCTIVE	COMPUTERS, HIGH RESOLUTION TV SETS, COMPLICATED ELECTRICAL EQUIPMENT.	AN INDUCTIVE TYPE LINE CONDITIONER ALONG WITH TRANSIENT AND SURGE PROTECTION IS REQUIRED, AND LIABILITIES STILL EXIST. DO NOT USE THESE DEVICES WITH A OUTBACK™ 185.

**The Lincoln Electric Company is not responsible for any damage to electrical components improperly connected to a OUTBACK™ 185.**

# OPERATION

## SAFETY INSTRUCTIONS

### **WARNING**



ELECTRIC SHOCK can kill.

Do not touch electrically live parts or electrode with skin or wet clothing.

Insulate yourself from work and ground.

Always wear dry insulating gloves.

### **WARNING**



FUMES AND GASES can be dangerous.

Keep your head out of fumes.

Use ventilation or exhaust to remove fumes from breathing zone.

### **WARNING**



WELDING SPARKS can cause fire or explosion.

Keep flammable material away.

Do not weld on containers that have held combustibles.


### **WARNING**




ARC RAYS can burn.

Wear eye, ear and body protection.

**⚠ WARNING**

	<p>ENGINE EXHAUST can kill.</p> <p>Use in open, well ventilated areas or vent exhaust outside.</p> <p>Do not stack anything on or near the engine.</p>
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
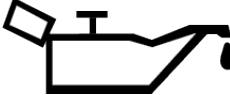



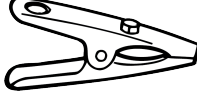







**⚠ WARNING**

	<p>MOVING PARTS can injure.</p> <p>Do not operate with doors open or guards off.</p> <p>Stop engine before servicing.</p> <p>Keep away from moving parts.</p>
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**Only qualified personnel should install, use, or service this equipment.**  
**Observe additional Safety Guidelines detailed throughout this manual.**

**GRAPHIC SYMBOLS**

**Table 3: GRAPHIC SYMBOLS USED ON THIS EQUIPMENT OR IN THIS MANUAL**

	<b>WARNING / CAUTION</b>		<b>CHOKE</b>
	<b>OIL</b>		<b>AIR CLEANER</b>
	<b>FUEL</b>		<b>CIRCUIT BREAKER</b>
	<b>WORK CLAMP</b>		<b>GROUND (AUXILIARY POWER)</b>
	<b>FAST</b>		<b>ELECTRODE WELDING ARC</b>
	<b>SLOW</b>		<b>ENGINE OFF</b>
	<b>AUTO IDLE</b>		<b>ENGINE START</b>

---

## GENERAL DESCRIPTION

The OUTBACK™ 185 is designed for commercial use welder/generator applications. As a welder it provides 185 amps of DC constant current for welding with DC stick electrodes. A single dial lets you select a full range of welding output from 50 to 185 amps.

As a generator it can supply up to 5700 surge watts or 5200 continuous watts of 120 / 240 volt, single-phase AC power. The machine is portable.

A Kohler CH440 14 HP air cooled, OHV gasoline engine powers the welder / generator. It has an engine warranty of 3 years.

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## RECOMMENDED APPLICATIONS

### Welder

The OUTBACK™ 185 provides excellent constant current DC welding output for stick (SMAW) welding.

### Generator

The OUTBACK™ 185 gives smooth AC generator output for continuous auxiliary power usage within the engine manufacturer's required maintenance recommendations.

---

## OPERATIONAL FEATURES AND CONTROLS

The OUTBACK™ 185 was designed for simplicity. Therefore, it has very few operating controls. A single dial on the control panel lets you select either welder or generator use. For welding, the same dial selects continuous current output over the machine's 50 to 185 amp range.

The gasoline engine controls include a recoil starter, choke and stop switch. See [ENGINE OPERATION](#) on page B-5 in the [OPERATION](#) on page -1 section of this manual for details about starting, running, stopping, and breaking in the gasoline engine.

---

## DESIGN FEATURES AND ADVANTAGES

- 185 amp DC constant current welding for stick electrodes.
- Lightweight / portable.
- Full range, continuous welding output control with a single knob.
- Automatic shutdown under low oil level condition.
- Hour Meter Standard.
- 5700 Surge watts or 5200 Watts of continuous 120 / 240 volt single phase AC auxiliary power.
- Kohler CH440 14 HP overhead cam air-cooled gasoline engine. Smooth running, long life.

---

## WELDING CAPABILITY

The OUTBACK™ 185 rated 185 amps, 20 VDC at 10% duty cycle on a ten-minute basis. This means that you can load the welder to 185 amps for one minute out of every ten-minute period. The machine is capable of higher duty cycles at lower output currents. For example, you can load the welder to 100 amps for ten minutes out of ten for a 100% duty cycle.

The current is continuously variable from 50 to 185 amps DC. The OUTBACK™ 185 can, therefore, weld with all 3/32", 1/8" and most 5/32" diameter Lincoln DC electrodes.

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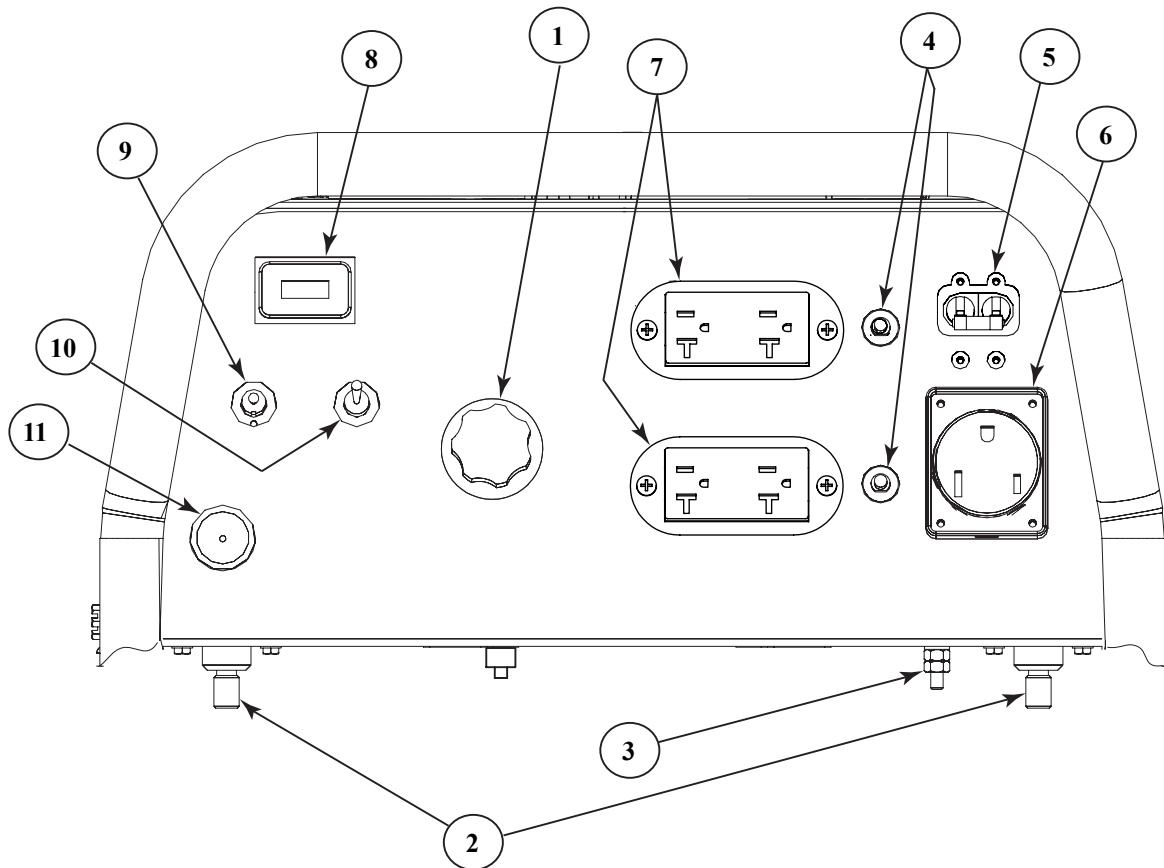
**LIMITATIONS**

- The OUTBACK™ 185 is not recommended for any processes besides those that are normally performed using stick welding (SMAW) procedures.
- The OUTBACK™ 185 is not recommended for pipe thawing.
- During welding, generator power is limited to 100 watts, and output voltages can drop from 120 to 80 volts and 240 to 160 volts. Therefore, DO NOT OPERATE ANY SENSITIVE ELECTRICAL EQUIPMENT WHILE YOU ARE WELDING.

---

**CONTROLS AND SETTINGS**

All welder/generator controls are located on the Output Control Panel. Gasoline engine controls are mounted on the engine. See [Figure 2: OUTPUT PANEL CONTROLS](#) on page -4 and the figures in [ENGINE OPERATION](#) on page B-5 section.



**Figure 2: OUTPUT PANEL CONTROLS**

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**WELDER GENERATOR CONTROLS**

See [Figure 2: OUTPUT PANEL CONTROLS](#) on page -4 for the location of the following features:

1. **CURRENT CONTROL DIAL:** Adjusts continuous current output. The amperages on the dial correspond to the approximate amperages needed for specific Lincoln welding electrodes.
2. **30 AMP CIRCUIT BREAKER:** Provide separate overload current protection for the 120 Volt and 240 Volt Receptacles.

3. **WELD POSITIVE OUTPUT TERMINAL:** Provides the connection point for either the electrode holder or the work cable. (Because the OUTBACK™ 185 is a DC output machine, either output terminal can be used for either cable.)
4. **WELD NEGATIVE OUTPUT TERMINAL:** Provides the connection point for either the electrode holder or the work cable. (Because the OUTBACK™ 185 is a DC output machine, either output terminal can be used for either cable.)
5. **GROUND STUD:** Provides a connection point for connecting the machine case to earth ground for the safest grounding procedure.
6. **CIRCUIT BREAKER:** Provides overload protection for weld output terminals.
7. **CIRCUIT BREAKERS (2):** Provide separate overload current protection for the 120 volt and 240 volt receptacles
8. **240 VOLT RECEPTACLE:** Connection point for supplying 250 volt power to operate one electrical device.
9. **120 VOLT DUPLEX RECEPTACLES (2):** Connection point for supplying 120 volt power to operate devices needed for maintenance purposes.
10. **HOUR METER:** Records the time that the engine has run for maintenance purposes.
11. **ENGINE CHOKE:** Engine starting aid.
12. **ENGINE SWITCH:**

Used to start the engine.

When placed in the "OFF" position, the ignition circuit is de-energized to shut down the engine.

When held in the "START" position, the engine starter motor is energized.

13. **HIGH/AUTO IDLE:** When in "HIGH IDLE" position, the engine will run continuously at high idle.

When in "AUTO IDLE" position, the engine will run continuously and the idler operates as follows:

- **Welding**

When the electrode touches the work, the welding arc is initiated and the engine accelerates to full speed. After welding ceases (and no auxiliary power is being drawn), the engine will return to low idle after approximately 10 to 14 seconds.

- **Auxiliary Power**

With the engine running at low idle and auxiliary power for lights or tools is drawn (approximately 0-150 watts or greater) from the receptacles, the engine will accelerate to high speed. If no power is being drawn from the receptacles (and not welding) for 10-14 seconds, the idler reduces the engine speed to low idle.

## ENGINE OPERATION

### Starting/Shutdown Instructions

Be sure all Pre-Operation Engine Service has been performed. Also, Read owners manual before starting for the first time. (See [INSTALLATION](#) on page -1 section)

Remove all loads connected to the AC power receptacles. Before starting, first open the fuel shutoff valve.

Always pull the choke control out when starting the engine; cold, warm or hot.


Flip the Idle switch to the "Auto Idle" position. Lift and hold the start switch in the "start" position engine starts. Release the switch to the run position and slowly return the choke to the full "In" position (Choke open). Do not lift the start switch to the "start" position while the engine is running because this will cause damage to the ring gear and/or starter motor.

### Stopping the Engine

Remove all welding and auxiliary power loads and allow engine to run for a few minutes to cool the engine.

## OPERATION

Stop the engine by placing the engine switch in the "Off" position.

 <b>WARNING</b>	
	Close the fuel valve when the machine is transported to prevent fuel leakage from the carburetor.



Fuel Valve is located under the fuel tank and above the recoil starter see [Figure 3: Fuel Valve](#) on page -6 for "ON/OFF" positions.



**Figure 3: Fuel Valve**

### Break-in Period

It is normal for any engine to use larger quantities of oil until break-in is accomplished. Check the oil level twice a day during the break-in period (about 50 running hours). Change the oil after the first 5 hours of operation. See the Engine Instruction Manual for further details.

 <b>CAUTION</b>	
	IN ORDER TO ACCOMPLISH THIS BREAK-IN, THE UNIT SHOULD BE SUBJECTED TO MODERATE LOADS, WITHIN THE RATING OF THE MACHINE. AVOID LONG IDLE RUNNING PERIODS. REMOVE LOADS AND ALLOW ENGINE TO COOL SEVERAL MINUTES AT LOW IDLE BEFORE SHUTDOWN.

### Low Oil Sensing

This engine has a built in sensor which responds to low oil level (not pressure). When activated, the system will shut the engine down. The engine will not restart until sufficient oil is added. Check oil level frequently and add oil as required to the full mark on the dipstick. DO NOT OVERFILL.

### Typical Fuel Consumption

	KOHLER CH440 14 HP
NO LOAD 2250 R.P.M.	.22 GALLONS/HOUR .83 (LITERS/HOUR)
NO LOAD 3750 R.P.M.	.45 GALLONS/HOUR 1.70 (LITERS/HOUR)



	<b>KOHLER CH440 14 HP</b>
DC CC WELD OUTPUT 100 AMPS, 25 VOLTS	.77 GALLONS/HOUR 2.92 (LITERS/HOUR)
AUXILIARY POWER 5200 KVA	1.09 GALLONS/HOUR 4.13 (LITERS/HOUR)

**WELDING OPERATION****⚠ WARNING**

ELECTRIC SHOCK can kill.

Do not touch electrically live parts or electrode with skin or wet clothing.

Insulate yourself from work and ground.

Always wear dry insulating gloves.

**⚠ WARNING**

ENGINE EXHAUST can kill.

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

Do not stack anything on or near the engine.

**⚠ WARNING**

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.**

The OUTBACK™ 185 can deliver from 50 to 185 amps of welding output current . Output can be adjusted by setting the current control dial on the output control panel.

You can get maximum welding output by setting the dial to 185 AMPS. At high current settings like this, some output may decrease as the machine is used. If you are welding for a long time, you may need to turn the dial slightly upward to maintain the same results.

The numbers on the dial correspond to the approximate amps needed to weld using specific Lincoln welding rods. [Table 4: ELECTRODE SELECTION GUIDE](#) on page -9, gives you the recommended dial settings based on the thickness of the work and the size and type of rod you're using.

**TO USE THE OUTBACK™ 185 FOR WELDING:**

## OPERATION

1. Remove the flange nuts from the weld output terminals and place the work and electrode welding cables over the terminals. See [Figure 2: OUTPUT PANEL CONTROLS](#) on page -4. Replace and tighten the flange nuts securely. Be sure the connections are tight.
2. Select the appropriate electrode. See [Table 4: ELECTRODE SELECTION GUIDE](#) on page -9.
3. Attach the work clamp securely to the work you are welding.
4. Insert the electrode into the electrode holder.
5. Set the current control dial to the desired output current .
6. Start the gasoline engine.

See [ENGINE OPERATION](#) on page B-5 in this section of the manual.

7. Strike an arc and begin welding.

### **AFTER YOU FINISH THE WELD:**

1. Stop the gasoline engine. See [ENGINE OPERATION](#) on page B-5 in this section of the manual.
2. Allow the electrode and work to cool completely.
3. Remove the work clamp from the work.
4. Remove any remaining piece of electrode from the electrode holder.
5. If you are finished using the OUTBACK™ 185 for welding, disconnect the welding cables from the weld output terminals. Reattach the flange nuts and leave them on the terminals.

For DC+ welding, the electrode cable is to be connected to the "+" output stud and work cable to the "-" output stud. (For DC- welding, reverse these connections.)

### **Semi-automatic Wire Welding with a Lincoln Wire Feeder/Welder**

The OUTBACK™ 185 generator power can be used to supply up to 5,200 watts continuous input power to a Lincoln Wire Feeder/Welder. The Wire Feeder/ Welder is equipped with all the supplies needed for Flux-Cored Arc Welding (FCAW). Also some Wire Feeder/Welders come equipped with the essentials needed for Gas Metal Arc Welding (GMAW) or MIG processes, while others require the purchase of a conversion kit. These products are available where Lincoln products are sold. Contact your local authorized Lincoln representative for more details.

### **Plasma Cutting with Lincoln Pro-Cut 25.**

The OUTBACK™ 185 generator power can be used to supply up to 5,200 watts continuous input power to a Pro-Cut 25. The Pro-Cut will work satisfactorily under the following conditions:

1. Set the Current Control on the OUTBACK™ 185 to the 185 amp position. (Higher Settings may result in a shutdown of the Pro-Cut 25.)
2. Leave the "ON/OFF" switch on the Pro-Cut "OFF" until the OUTBACK™ 185 has been started and is at full operating speed.

### **120V Receptacle Operation:**

- Set the Output Control on the Pro-Cut 25 no higher than the 15 amp position.( Higher settings may cause circuit breaker on the OUTBACK™ 185 to trip.)
- Maximum material thickness that can be cut is 1/4".

### **240V Receptacle Operation:**

- The Pro-Cut 25 may be used for its full range of control.
- Maximum material thickness that can be cut is 3/8".

## AUXILIARY POWER OPERATION

### WARNING



Be sure that any electrical equipment plugged into the generator AC power receptacles can withstand a  $\pm 10\%$  voltage and a  $\pm 5\%$  frequency variation. Some electronic devices cannot be powered by the OUTBACK™ 185. Refer to [Table 2: ELECTRICAL DEVICE USE WITH THE OUTBACK 185](#) on page -8, in the [INSTALLATION](#) on page -1 section of this manual.

### GENERAL INFORMATION

The OUTBACK™ 185 is rated at 5700 Peak watts or 5200 continuous watts. It provides both 120 volt and 240 volt power. You can draw up to 20 amps from either side of the 120 volt duplex receptacle, but not more than 35.4 amps from both sides at once. Up to 17.7 amps can be drawn from the single 240 volt receptacle.

Electrical loads in watts are calculated by multiplying the voltage rating of the load by the number of amps it draws. (This information is given on the load device nameplate.) For example, a device rated 120 volts, 2 amps will need 240 watts of power ( $120 \times 2 = 240$ ).

You can use [Table 5: AUXILIARY POWER APPLICATIONS](#) on page -10, to determine the wattage requirements of the most common types of loads you can power with the OUTBACK™ 185. Be sure to read the notes at the bottom of the table.




### TO USE THE OUTBACK™ 185 AS AN AUXILIARY POWER SUPPLY:

1. Start the gasoline engine. See [ENGINE OPERATION](#) on page B-5 in this section of the manual.
2. Set the current control dial on the output control panel to "MAX." See [Figure 2: OUTPUT PANEL CONTROLS](#) on page -4.
3. Plug the load(s) into the appropriate 120 volt or 240 volt power receptacle.

**Note:** During welding, the maximum generator output for auxiliary loads is 100 watts.

**Note:** You can supply multiple loads as long as the total load does not exceed 5700 Peak watts or 5200 continuous watts. Be sure to start the largest loads first.

**Table 4: ELECTRODE SELECTION GUIDE**

AWS CLASSIFICATION	ELECTRODE TYPE	ELECTRODE POLARITY	CURRENT RANGE (AMPS)		
			 3/32 SIZE	 1/8 SIZE	 5/32 SIZE
E6010	FLEETWELD® 5P	DC+	50-75	75-135	90-175
E6011	FLEETWELD® 35	DC+	50-75	70-110	80-145
E6011	FLEETWELD® 180	DC+	50-80	55-110	105-135
E6013	FLEETWELD® 37	DC±	70-95	100-135	145-180
E7018	EXCALIBUR® 7018	DC+	70-100	90-125	125-185
E7018	JETWELD® LH-73	DC+	65-85	90-125	130-185
E708-17 & E308L-17	BLUE MAX® 308/308L AC-DC	DC+	50-80	75-110	95-150
ENi-ci	SOFTWELD® 99Ni	DC+	50-80	80-110	100-140
-	WEARSHIELD® ABR	DC+	-	50-150	50-185
SHEET THICKNESS			1/8 AND THINNER	1/8 AND THICKER	

**Table 5: AUXILIARY POWER APPLICATIONS**

<b>SUGGESTED POWER APPLICATIONS</b>	<b>RUNNING WATTS (CONTINUOUS)</b>	<b>*START-UP WATTS (PEAK)</b>
*Air Compressor - 1 HP	2,000	4,000 - 8,000
*Air Compressor - 3/4 HP	1,250	3,100 - 5,000
*Airless Sprayer - 1/3 HP	600	1,500 - 2,400
Chain Saw	1,200	
Circular Saw	1,200	
Coffee Maker	1,000	
*Deep Freezer	500	750 - 2,000
*Electric Motor	1,000	2,500 - 4,000
Electric Range (1 element)	1,500	
Electric Skillet	1,250	
*Furnace Fan - 1/3 HP	1,200	3,000 - 4,800
Portable Grinder (4 1/2")	600	
Portable Grinder (7")	2,000	
Halogen Work Light	500	
Hand Drill - 1/4"	500	
Hand Drill - 3/8"	700	
1500 Watt Heater	1,750	
Hedge Trimmer	450	
Light Bulb	100	
Reciprocating Saw	900	
Radial Arm Saw	2,600	
Radio	50	
*Refrigerator/Freezer (small)	600	1,500 - 2,400
Slow Cooker	200	
*Submersible Pump - 1 HP	1,000	2,500 - 4,000
*Sump Pump	600	1,500 - 2,400
Toaster	1,100	
Weed Trimmer	500	
Lincoln Wire Feeder/Welder	4,000	

**NOTES:**

Wattages listed are approximate. Check your equipment for actual wattage.

Equipment with unusually high \*START-UP WATTS are listed. For start-up of other equipment that uses a motor, listed in the table, multiply RUNNING WATTS by 2.

Multiple loads can be used as long as the total load does not exceed 5,700 Peak watts. Be sure to start the largest loads first.

# ACCESSORIES AND OPTIONS

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## OPTIONS / ACCESSORIES

The following options/accessories are available for your OUTBACK™ 185 from your local Lincoln Distributor:

**Accessory Kit (K875)** - Includes the following:

- Twenty feet (6.1 meters) of #6 AWG electrode cable with lug.
- Fifteen feet (4.6 meters) of #6 work cable with lugs.
- Work Clamp
- Headshield with No. 10 filter
- Insulated electrode holder and sample electrodes 150 amp capacity.

**Undercarriage (K2722-1)** - A two-wheeled, hand movable undercarriage is available for field installation.

**Rotor Removal Kit (S20925)** - A service kit with thru bolt and impact bolts for removing the generator rotor from tapered engine crank shaft.

**Canvas Cover (K2804-1)** - To protect the Outback 185 when not in use. Made from attractive red canvas which is flame retardant, mildew resistant and water repellent.

**Lift Bail Kit (K2819-1)** - Easily installed kit for lifting the machine with a fixed lifting point.



# MAINTENANCE

## SAFETY PRECAUTIONS

### WARNING



Have qualified personnel do all maintenance and troubleshooting work.

Turn the engine off before working inside the machine.

Remove guards only when necessary to perform maintenance and replace them when the maintenance requiring their removal is complete.

If guards are missing from the machine, get replacements from a Lincoln Distributor. See the EXPLODED VIEW AND PARTS LIST at the back of this manual.

Read the Safety Precautions in the front of this manual and in the Kohler **Operating and Maintenance Instructions** manual before working on the OUTBACK™ 185. Keep all equipment safety guards, covers, and devices in position and in good repair. Keep your hands, hair, clothing, and tools away from the recoil housing, fans, and all other moving parts when starting, operating, or repairing this machine.

## ROUTINE AND PERIODIC MAINTENANCE

### CAUTION

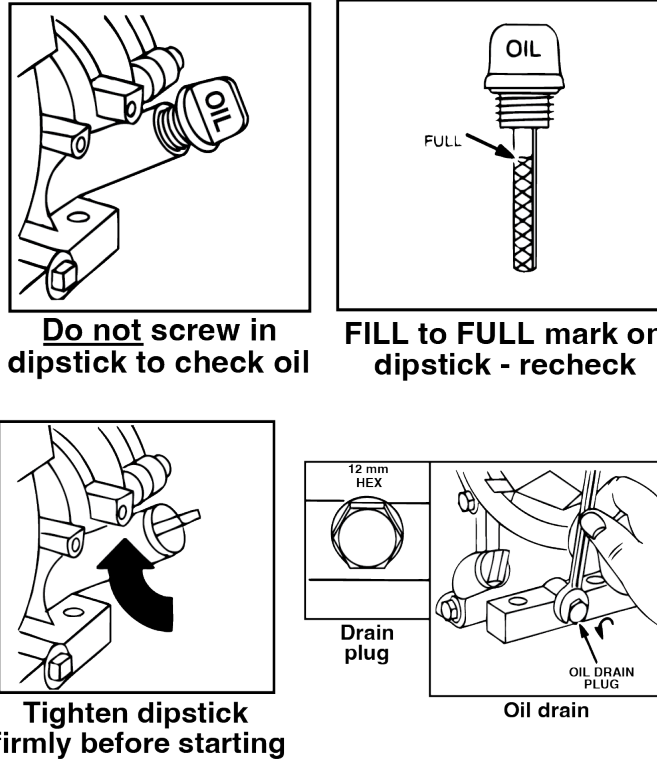


To prevent the engine from accidentally starting, disconnect the spark plug lead before servicing the engine.

See the Kohler Owner's manual for a summary of maintenance intervals for the engine. Follow either the hourly or the calendar intervals, whichever come first. More frequent service may be required, depending on your specific application and operating conditions. The Kohler Owner's manual shows engine maintenance replacement parts and numbers.

**OIL:** Check the oil level after every 5 hours of operation or daily. **BE SURE TO MAINTAIN THE OIL LEVEL.** Change the oil the first time after 20 hours of operation. Then, under normal operating conditions, change the oil after every 100 hours or once a year, whichever occurs first. If the engine is operated under heavy load or in high ambient temperatures, change the oil every 50 hours.

Drain the oil from the drain plug located on either side of the engine bottom, as shown in [Figure 4: OIL DRAIN AND REFILL LOCATION](#) on page -2. Refill through the oil fill plug until the oil reaches the full mark on the dip stick. See Engine Owner's manual for specific oil recommendations.



**Figure 4: OIL DRAIN AND REFILL LOCATION**

**FUEL:** At the end of each day's use, refill the fuel tank to minimize moisture condensation and dirt contamination in the fuel line.

**AIR CLEANER:** With normal operating conditions, the maintenance schedule for cleaning and re-oiling the foam pre-filter is every 50 hours and replacement of the air cleaner filter element every 100 hours. More frequent servicing is required with dusty operating conditions. Refer to the maintenance section of the Engine Owner's Manual for more information.

**To service the pre-cleaner:**

Remove the cover. Carefully remove the foam pre-cleaner from the filter element.

1. Wash in liquid detergent and water.
2. Squeeze dry in a clean cloth.
3. Saturate in clean engine oil.
4. Squeeze in a clean, absorbent cloth to remove all excess oil.

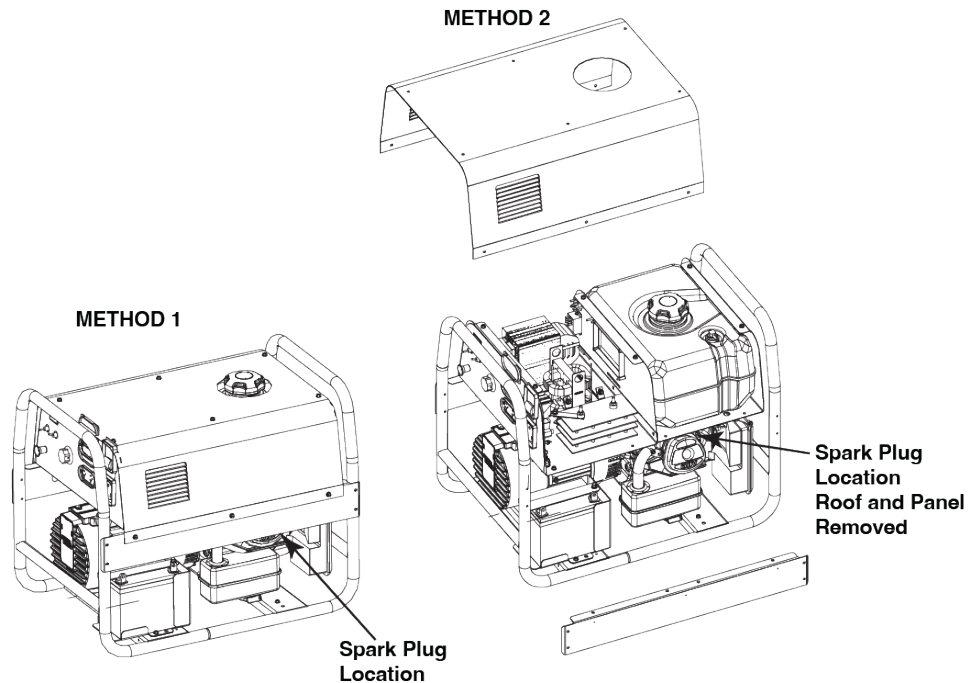
Carefully place the pre-cleaner back over the filter element and reinstall the air cleaner cover and wing nuts.

**CLEAN ENGINE:** Remove dirt and debris with a cloth or a brush. Do not clean with a forceful spray of water. Water might contaminate the fuel system. Use low pressure air to blow out the machine periodically. In particularly dirty locations this may be required once a week.

**SPARK PLUG SERVICE**

The Spark plug can be serviced by either of the following methods: See [Figure 5: Spark Plug Service](#) on page -3.





**Figure 5: Spark Plug Service**

1. Access Spark Plug by reaching underneath the side panel near the muffler.
2. Remove 20 screws securing the roof, and side panel to gain access to the Spark Plug. Be sure to support the fuel tank tray and control panel once the side panel is removed.

**⚠ CAUTION**



Be sure not to cross thread Spark Plug when reinstalling.  
This area is HOT if engine has been running. Allow engine to cool before servicing.

**⚠ WARNING**




**ENGINE ADJUSTMENTS**

**OVERSPEED IS HAZARDOUS** - The maximum allowable high idle speed for this machine is 3750 RPM, no load. Do NOT tamper with the governor components or setting or make any other adjustments to increase the maximum speed. Severe personal injury and damage to the machine can result if operated at speeds above maximum.

Adjustments to the engine are to be made only by a Lincoln Service Center or an authorized Field Service Shop.

**SLIP RINGS**

<b>⚠ CAUTION</b>	
	A slight amount of darkening and wear of the slip rings and brushes is normal. Brushes should be inspected when a general overhaul is necessary. If brushes are to be replaced, clean slip rings with a fine emery paper. Do not attempt to polish slip rings while engine is running.

**HARDWARE**


Both English and Metric fasteners are used in this welder.

**ENGINE MAINTENANCE PARTS**

**Kohler CH440**

Air Filter Element	63 083 19-S
Air Filter Pre-Cleaner	63 083 17-S
Spark Plug	Champion RC 12YC
(Resistor Type)	(Gap .030" [.76mm])

**OPERATIONAL CLEARANCE**

<b>⚠ CAUTION</b>	
	Approximately 12-18" of clearance should be around this unit during operation for air flow. Reducing this clearance will reduce air flow to the machine causing operational temperatures to increase. Possible damage to the machine can result if too much air flow is restricted.

# TROUBLESHOOTING

## HOW TO USE TROUBLESHOOTING GUIDE

### WARNING



Service and Repair should only be performed by Lincoln Electric Factory Trained Personnel. Unauthorized repairs performed on this equipment may result in danger to the technician and machine operator and will invalidate your factory warranty. For your safety and to avoid Electrical Shock, please observe all safety notes and precautions detailed throughout this manual.

This Troubleshooting Guide is provided to help you locate and repair possible machine malfunctions. Simply follow the three step procedure listed below.

The following “problems/symptoms” are a guide to solving issues that may be obvious with welding equipment. This document is not intended to be comprehensive. For further assistance see the Theory of Operation Section in this manual.

#### Step 1. LOCATE PROBLEM (SYMPTOM).

Look under the column labeled “PROBLEM (SYMPTOMS)”. This column describes possible symptoms that the machine may exhibit. Find the listing that best describes the symptom that the machine is exhibiting.

#### Step 2. POSSIBLE CAUSE.

The second column labeled “POSSIBLE CAUSE” lists the obvious external possibilities that may contribute to the machine symptom.

#### Step 3. RECOMMENDED COURSE OF ACTION

This column provides a course of action for the Possible Cause, generally it states to contact your local Lincoln Authorized Field Service Facility.

### CAUTION



If you do not understand or are unable to perform the Recommended Course of Action safely, contact your local Lincoln Authorized Field Service Facility.

## TROUBLESHOOTING GUIDE

Observe all Safety Guidelines detailed throughout this manual

PROBLEMS (SYMPTOMS)	POSSIBLE CAUSE	RECOMMENDED COURSE OF ACTION
OUTPUT PROBLEMS		

TROUBLESHOOTING

PROBLEMS (SYMPTOMS)	POSSIBLE CAUSE	RECOMMENDED COURSE OF ACTION
Major Physical or Electrical Damage is Evident.	<ol style="list-style-type: none"> <li>1. Contact your local Lincoln Authorized Field Service Facility.</li> </ol>	<p>If all recommended possible areas of misadjustment have been checked and the problem persists, <b>Contact your local Lincoln Authorized Field Service Facility.</b></p>
No Generator power or welding output.	<ol style="list-style-type: none"> <li>1. Check brushes for wear. See <a href="#">Maintenance section</a>.</li> <li>2. Check for loose or faulty connections at brush holders.</li> <li>3. Open lead in flashing or field circuit.</li> <li>4. Rheostat (R1) lead broke.</li> <li>5. Dirty slip rings.</li> <li>6. Faulty rheostat (R1).</li> <li>7. Faulty field bridge rectifier (D1).</li> <li>8. Faulty field capacitor (C1).</li> <li>9. Faulty stator field winding.</li> <li>10. Faulty rotor.</li> </ol>	<p>If all recommended possible areas of misadjustment have been checked and the problem persists, <b>Contact your local Lincoln Authorized Field Service Facility.</b></p>
Generator power is available but unit will not weld.	<ol style="list-style-type: none"> <li>1. Loose connector to output stud.</li> <li>2. Work not connected.</li> <li>3. Electrode holder loose.</li> <li>4. No open circuit voltage at output studs. Open lead in weld circuit.</li> <li>5. Faulty output bridge rectifier.</li> <li>6. Faulty choke (L1).</li> </ol>	<p>If all recommended possible areas of misadjustment have been checked and the problem persists, <b>Contact your local Lincoln Authorized Field Service Facility.</b></p>
Unit will weld but low or no generator power is available.	<ol style="list-style-type: none"> <li>1. Circuit breaker is open.</li> <li>2. Loose or open connection with electrical plug-in component.</li> <li>3. Current control dial not at "MAX".</li> <li>4. No open circuit voltage at receptacle.</li> </ol>	<p>If all recommended possible areas of misadjustment have been checked and the problem persists, <b>Contact your local Lincoln Authorized Field Service Facility.</b></p>
No auxiliary power but machine has weld output.	<ol style="list-style-type: none"> <li>1. Check CB1 and CB2 - Reset if tripped.</li> </ol>	<p>If all recommended possible areas of misadjustment have been checked and the problem persists, <b>Contact your local Lincoln Authorized Field Service Facility.</b></p>



 **CAUTION**


If for any reason you do not understand the test procedures or are unable to perform the tests/repairs safely, contact your **Local Lincoln Authorized Field Service Facility** for technical troubleshooting assistance before you proceed.

PROBLEMS (SYMPTOMS)	POSSIBLE CAUSE	RECOMMENDED COURSE OF ACTION
<b>ENGINE PROBLEMS</b>		
Engine will not idle down to low speed.	<ol style="list-style-type: none"> <li>1. Engine Switch on HIGH Idle.</li> <li>2. Engine choke is not fully open.</li> <li>3. External load on welder or auxiliary power. - Remove load.</li> <li>4. Machine output is under load or Engine switch in wrong position.</li> <li>5. Idle solenoid does not pull in.</li> </ol>	If all recommended possible areas of misadjustment have been checked and the problem persists, <b>Contact your local Lincoln Authorized Field Service Facility.</b>
Engine idles down to low idle but will not stay at low idle.	<ol style="list-style-type: none"> <li>1. Engine low idle RPM may be set too low. - Contact Lincoln Field Service Facility.</li> </ol>	If all recommended possible areas of misadjustment have been checked and the problem persists, <b>Contact your local Lincoln Authorized Field Service Facility.</b>
Engine will not go to high idle when attempting to weld or use generator power.	<ol style="list-style-type: none"> <li>1. Check Work and Electrode cables for loose or faulty connections.</li> <li>2. Mechanical linkage from solenoid to engine stuck.</li> <li>3. Open connection in weld circuit.</li> <li>4. No output from receptacles or load too small.</li> <li>5. Idler pc board is not sensing output current.</li> <li>6. Faulty idler pc board.</li> </ol>	If all recommended possible areas of misadjustment have been checked and the problem persists, <b>Contact your local Lincoln Authorized Field Service Facility.</b>
Engine will not go to high idle when using auxiliary power.	<ol style="list-style-type: none"> <li>1. Auxiliary load less than 100 watts.</li> <li>2. Circuit breaker CB1 or CB2 tripped or faulty.</li> <li>3. Mechanical linkage from solenoid to engine stuck.</li> </ol>	If all recommended possible areas of misadjustment have been checked and the problem persists, <b>Contact your local Lincoln Authorized Field Service Facility.</b>
Engine runs erratic or stops running or engine surges at low idle.	<ol style="list-style-type: none"> <li>1. Oil level may be low activating the engine "Oil Gard" shutdown system. - Check oil level.</li> <li>2. Idle solenoid linkage or engine idle misadjusted.</li> </ol>	If all recommended possible areas of misadjustment have been checked and the problem persists, <b>Contact your local Lincoln Authorized Field Service Facility.</b>

TROUBLESHOOTING

PROBLEMS (SYMPTOMS)	POSSIBLE CAUSE	RECOMMENDED COURSE OF ACTION
Recoil starter is hard to pull.	1. Crankcase may be over-filled with oil. - Check oil level.	If all recommended possible areas of misadjustment have been checked and the problem persists, <b>Contact your local Lincoln Authorized Field Service Facility.</b>
Engine will not start or starts but runs rough with low power.	1. Water in engine from rain and / or condensation. - Remove spark plug and dry it if wet. Blow low pressure compressed air in spark plug port while pulling recoil starter. Re install spark plug. 2. Spark plug may be faulty. 3. Air filter element saturated with water and / or oil - Replace.	If all recommended possible areas of misadjustment have been checked and the problem persists, <b>Contact your local Lincoln Authorized Field Service Facility.</b>

 <b>CAUTION</b>	
	If for any reason you do not understand the test procedures or are unable to perform the tests/repairs safely, contact your <b>Local Lincoln Authorized Field Service Facility</b> for technical troubleshooting assistance before you proceed.

PROBLEMS (SYMPTOMS)	POSSIBLE CAUSE	RECOMMENDED COURSE OF ACTION
<b>WELDING PROBLEMS</b>		
Engine runs erratically or stops running.	1. Engine is not fully warmed-up and engine choke is in the fully open (RUN) position. 2. Engine requires service to head, carburetor, filters, oil spark plug and / or gas. 3. Oil level to low.	If all recommended possible areas of misadjustment have been checked and the problem persists, <b>Contact your local Lincoln Authorized Field Service Facility.</b>
Engine sputters but will not start.	1. Bad gas, bad filter, air cleaner, spark plug, and / or breather.	If all recommended possible areas of misadjustment have been checked and the problem persists, <b>Contact your local Lincoln Authorized Field Service Facility.</b>
Recoil starter is hard to pull.	1. Too much oil in crankcase.	If all recommended possible areas of misadjustment have been checked and the problem persists, <b>Contact your local Lincoln Authorized Field Service Facility.</b>

PROBLEMS (SYMPTOMS)	POSSIBLE CAUSE	RECOMMENDED COURSE OF ACTION
Arc is erratic and "pops out".	<ol style="list-style-type: none"> <li>1. Check Work and Electrode cables for loose or faulty connection.</li> <li>2. Electrode may be wet.</li> </ol>	If all recommended possible areas of misadjustment have been checked and the problem persists, <b>Contact your local Lincoln Authorized Field Service Facility.</b>
Arc becomes "Cold" at the short Arc lengths or shorts to the work piece.	<ol style="list-style-type: none"> <li>1. Reset circuit breaker (CB4) located under the Current Control Dial on the bottom side of the control panel.</li> </ol>	If all recommended possible areas of misadjustment have been checked and the problem persists, <b>Contact your local Lincoln Authorized Field Service Facility.</b>

 **CAUTION**



If for any reason you do not understand the test procedures or are unable to perform the tests/repairs safely, contact your **Local Lincoln Authorized Field Service Facility** for technical troubleshooting assistance before you proceed.

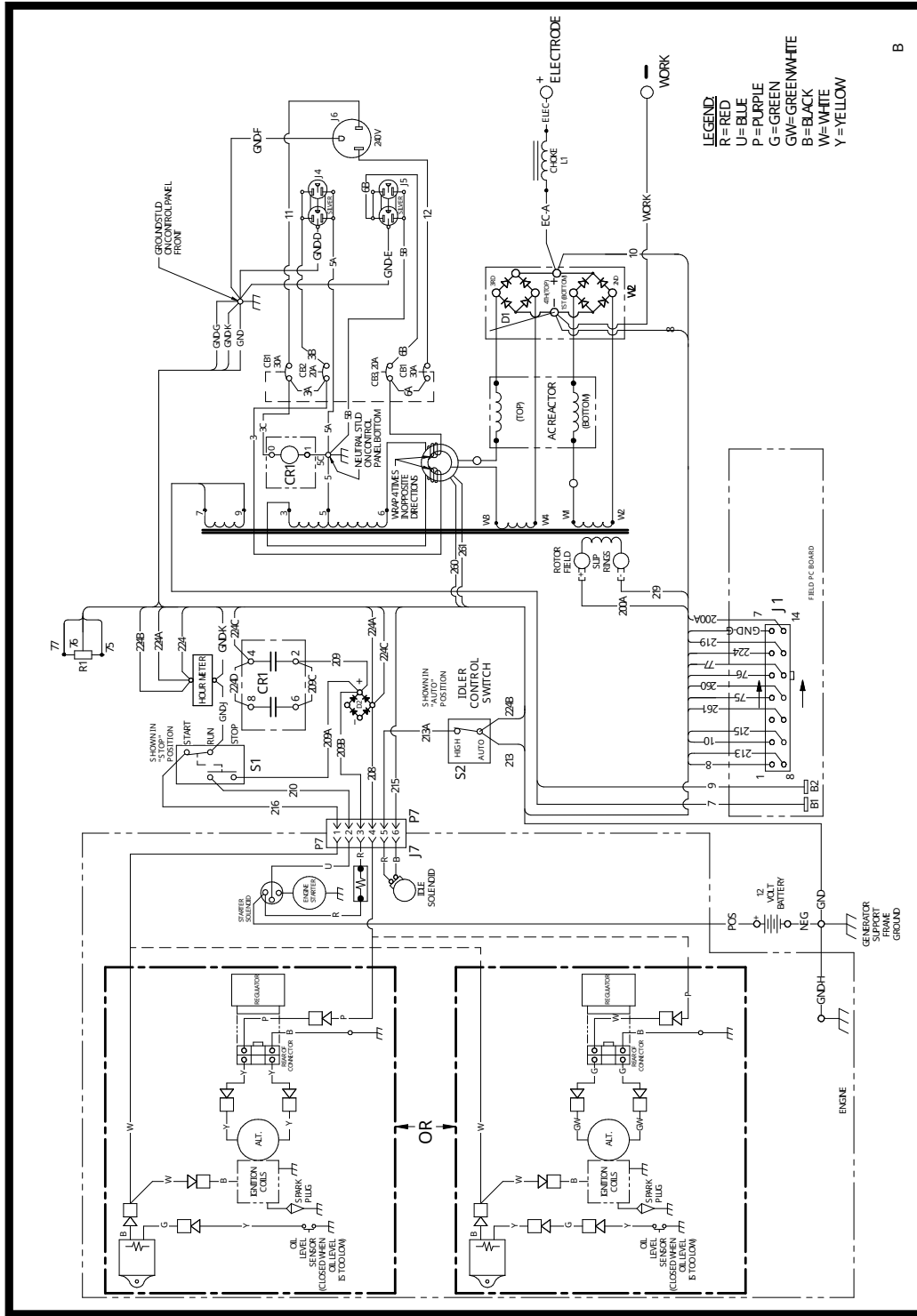




# DIAGRAMS & PRINTS

WIRING DIAGRAM

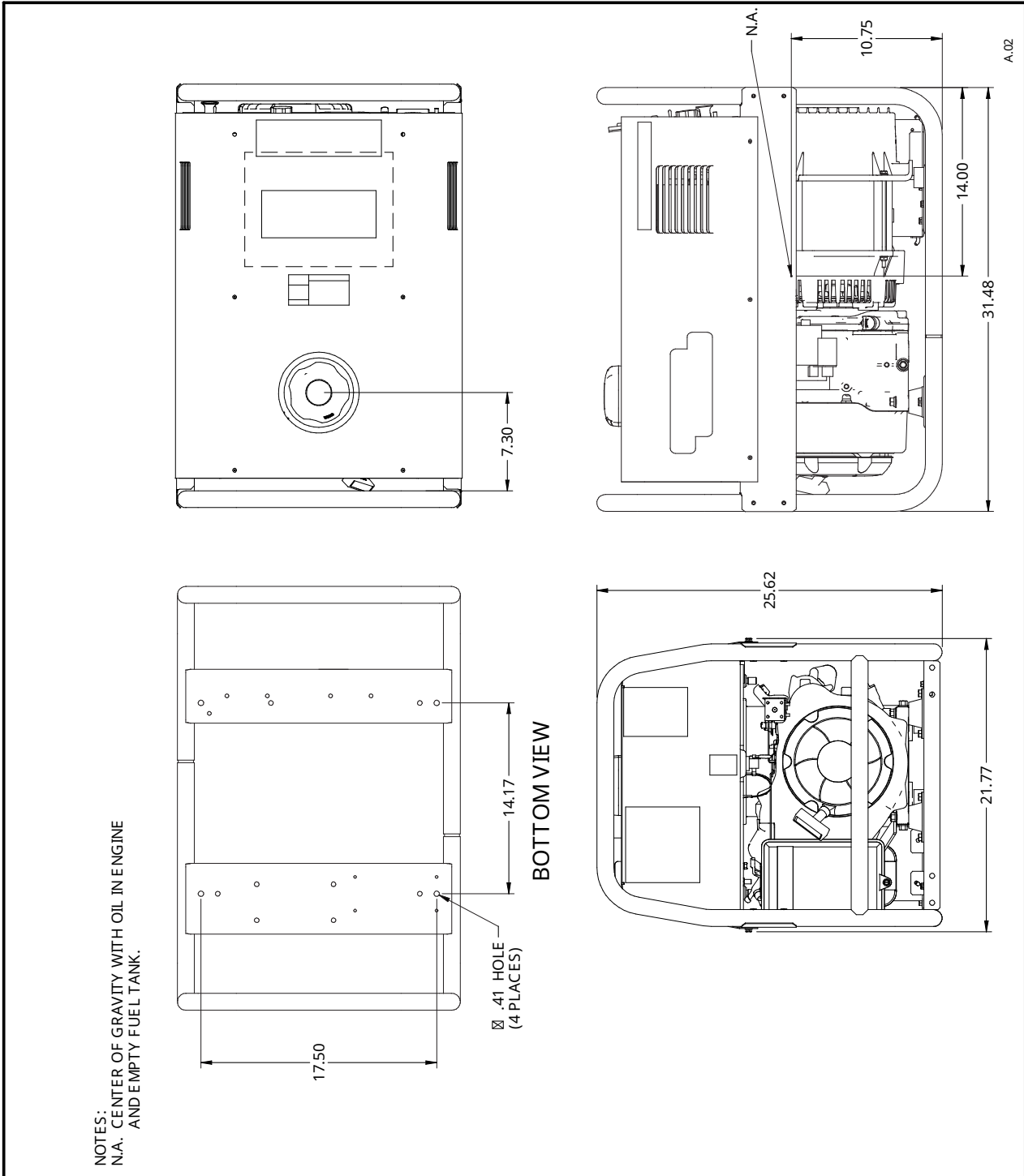
WIRING DIAGRAM - OUTBACK 185



L15850

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**DIMENSIONS**





# **CUSTOMER ASSISTANCE POLICY**

## **CUSTOMER ASSISTANCE POLICY**

The business of Lincoln Electric is manufacturing and selling high quality welding equipment, automated welding systems, consumables, and cutting equipment. Our challenge is to meet the needs of our customers, who are experts in their fields, and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for information or technical information about their use of our products. Our employees respond to inquiries to the best of their ability based on information and specifications provided to them by the customers and the knowledge they may have concerning the application. Our employees, however, are not in a position to verify the information provided or to evaluate the engineering requirements for the particular weldment, or to provide engineering advice in relation to a specific situation or application. Accordingly, Lincoln Electric does not warrant or guarantee or assume any liability with respect to such information or communications. Moreover, the provision of such information or technical information does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or technical information, including any implied warranty of merchantability or any warranty of fitness for any customers' particular purpose or any other equivalent or similar warranty is specifically disclaimed.

Lincoln Electric is a responsive manufacturer, but the definition of specifications, and the selection and use of specific products sold by Lincoln Electric is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of Lincoln Electric affect the results obtained in applying these types of fabrication methods and service requirements.

## **WELD FUME CONTROL EQUIPMENT**

The operation of welding fume control equipment is affected by various factors including proper use and positioning of the equipment, maintenance of the equipment and the specific welding procedure and application involved. Worker exposure level should be checked upon installation and periodically thereafter to be certain it is within applicable OSHA PEL and ACGIH TLV limits.

## **PARTS LIST**

Content/Details may be changed or updated without notice. For most current Instruction Manuals, go to [PARTS.LINCOLNELECTRIC.COM](http://PARTS.LINCOLNELECTRIC.COM).

