RED-D-ARC D300K 3+3 SE

IM10156

July 2016

For use with machines having Code Numbers: **11948**

Red-D-Arc Welderentals®

OPERATOR'S MANUAL

Red-D-Arc Spec-Built Welding Equipment

This ***RED-D-ARC*** welder is built to ***RED-D-ARC Extreme Duty*** design specifications by Lincoln Electric.

Safety Depends on You

This welder 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.

1-800-245-3660

North America's Largest Fleet of Welding Equipment

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 arc 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.

⚠ WARNING

This statement appears where the information must be followed exactly to avoid serious personal injury or loss of life.

⚠ CAUTION

This statement appears where the information must be followed to avoid minor personal injury or damage to this equipment.

KEEP YOUR HEAD OUT OF THE FUMES.

DON'T get too close to the arc. Use corrective lenses if necessary to stay a reasonable distance away from the arc.

READ and obey the Safety Data Sheet (SDS) and the warning label that appears on all containers of welding materials.

USE ENOUGH VENTILATION or exhaust at the arc, 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 (See below).

USE NATURAL DRAFTS or fans to keep the fumes away from your face.

If you develop unusual symptoms, see your supervisor. Perhaps the welding atmosphere and ventilation system should be checked.

WEAR CORRECT EYE, EAR & BODY PROTECTION

PROTECT your eyes and face with welding helmet 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.

IN SOME AREAS, protection from noise may be appropriate.

BE SURE protective equipment is in good condition.

Also, wear safety glasses in work area **AT ALL TIMES.**

SPECIAL SITUATIONS

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.

Additional precautionary measures

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.

SECTION A: WARNINGS

CALIFORNIA PROPOSITION 65 WARNINGS

WARNING: Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects, or other reproductive harm.

- Always start and operate the engine in a well-ventilated area.
- If in an exposed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.

For more information go to www.P65 warnings.ca.gov/diesel

WARNING: 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 & Safety Code § 25249.5 *et seq.)*

WARNING: Cancer and Reproductive Harm www.P65warnings.ca.gov

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 W117.2-1974. 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.

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

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

1.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.

1.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.

1.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.

1.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.

1.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.

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

ELECTRIC AND MAGNETIC FIELDS MAY BE DANGEROUS

2.a. Electric current flowing through any conductor causes localized Electric and Magnetic Fields (EMF). Welding current creates EMF fields around welding cables and welding machines

2.b. EMF fields may interfere with some pacemakers, and welders having a pacemaker should consult their physician before welding.

2.c. Exposure to EMF fields in welding may have other health effects which are now not known.

2.d. All welders should use the following procedures in order to minimize exposure to EMF fields from the welding circuit:

2.d.1. Route the electrode and work cables together - Secure them with tape when possible.

2.d.2. Never coil the electrode lead around your body.

2.d.3. 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.

2.d.4. Connect the work cable to the workpiece as close as possible to the area being welded.

2.d.5. Do not work next to welding power source.

ELECTRIC SHOCK CAN KILL.

3.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.

3.b. 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.

3.c. In semiautomatic or automatic wire welding, the electrode, electrode reel, welding head, nozzle or semiautomatic welding gun are also electrically “hot”.

3.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.

3.e. Ground the work or metal to be welded to a good electrical (earth) ground.

3.f. Maintain the electrode holder, work clamp, welding cable and welding machine in good, safe operating condition. Replace damaged insulation.

3.g. Never dip the electrode in water for cooling.

3.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.

3.i. When working above floor level, use a safety belt to protect yourself from a fall should you get a shock.

3.j. Also see Items 6.c. and 8.

ARC RAYS CAN BURN.

4.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. I standards.

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

4.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.

5.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 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.**

5. b. 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.

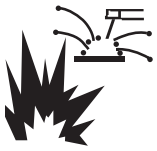
5.c. Do not weld in locations near chlorinated hydrocarbon vapors coming from degreasing, cleaning or spraying operations. The heat and rays of the arc can react with solvent vapors to form phosgene, a highly toxic gas, and other irritating products.

5.d. 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.

5.e. 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.

5.f. Also see item 1.b.

WELDING AND CUTTING SPARKS CAN CAUSE FIRE OR EXPLOSION.



6.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. Avoid welding near hydraulic lines. Have a fire extinguisher readily available.

6.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.

6.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.

6.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 from the American Welding Society (see address above).

6.e. Vent hollow castings or containers before heating, cutting or welding. They may explode.

6.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.

6.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.

6.h. Also see item 1.c.

6.I. 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.

6.j. Do not use a welding power source for pipe thawing.

CYLINDER MAY EXPLODE IF DAMAGED.

7.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.

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

7.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.

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

7.e. Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.

7.f. Valve protection caps should always be in place and hand tight except when the cylinder is in use or connected for use.

7.g. Read and follow the instructions on compressed gas cylinders, associated equipment, and CGA publication P-I, "Precautions for Safe Handling of Compressed Gases in Cylinders," available from the Compressed Gas Association, 14501 George Carter Way Chantilly, VA 20151.

FOR ELECTRICALLY POWERED EQUIPMENT.

8.a. Turn off input power using the disconnect switch at the fuse box before working on the equipment.

8.b. Install equipment in accordance with the U.S. National Electrical Code, all local codes and the manufacturer's recommendations.

8.c. Ground the equipment in accordance with the U.S. National Electrical Code and the manufacturer's recommendations.

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

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TECHNICAL SPECIFICATIONS - Red-D-Arc D300K 3+3 SE

INPUT - ENGINE					
Make/Model	**Description**	**Speed (RPM)**	**Displacement**	**Starting System**	**Capacities**
Kubota D1503-M EPA TIER 4 Compliant	3 Cylinder 24.8 HP @ (18.5KW) Naturally Aspirated Water Cooled Diesel Engine	High Idle 1800 Full Load 1800	91.47 cu. in. (1.56 ltrs) Bore x Stroke 3.27 x 3.64 (83mm x 92mm)	12VDC Battery	Fuel: 16gal. (60.6L) Oil: 5.9qts. (5.6L) Engine Coolant: 7.82qts. (7.4L)

RATED OUTPUT - WELDER			
Welding Output	**Volts at Rated Amps**	**Duty Cycle[1]**	**Max. OCV @ 1800 RPM**
300 Amps	32 volts	60%	90 volts DC

OUTPUT - GENERATOR
Auxiliary Power [2]
2400 Watts, 60 Hz 120 Volts AC 100 % Duty Cycle

PHYSICAL DIMENSIONS			
HEIGHT	**WIDTH**	**DEPTH**	**WEIGHT**
45.5 in. 1156 mm	24.3 in. 617 mm	62.8 in. 1595 mm	1371 lbs. 622 kg.

LIFT BAIL WEIGHT RATING 2000 LBS. (907KG.) MAXIMUM

1. Duty cycle is based on a 10 minute period. This machine can be loaded to 300 amps for 6 minutes out of every 10 minute period.

2. Output rating in watts is equivalent to volt-amperes at unity power factor. Output voltage is within ± 10% at all loads up to rated capacity. When welding, available auxiliary power will be reduced.

GENERAL DESCRIPTION

The D300K 3+3 SE is a heavy duty, engine driven, DC arc welding power source, capable of providing constant current output for stick welding or DC TIG welding. This welder is wound with all copper coils, rated at 300 amps / 32 Volts, and provides other features such as improved door latches and stainless hinges.

The D300K 3+3 SE has Diesel Engine Protection. In the event of sudden low oil pressure or high coolant temperature, the engine immediately shuts down. The D300K 3+3 SE has a current range of 40-325 DC amps.

RATED OUTPUT	DUTY CYCLE
300A @ 32V	60%
250A @ 30V	100%

This unit is also capable of providing 2400W of 120 volts of 60 hertz AC auxiliary power.

DESIGN FEATURES

Control Panel

The welder controls are located on the upper control panel at the exciter end of the machine. The welder controls consist of a five step “Current Range Selector” switch and a “Fine Current Adjustment” rheostat. The welder is equipped with a “Start” and “Glow Plug” switch for easier cold weather starting and a “Stop” (pull knob), located on the lower control panel at the exciter end of the machine.

The lower control panel contains a battery charging ammeter, GFCI and one circuit breaker for auxiliary power. If a GFCI is tripped, See the MAINTENANCE section for detailed information on testing and resetting the GFCI.

All Copper Windings - For long life and dependable operation.

Auxiliary Power - 2400W of nominal 120V, 60Hz, AC. Output voltage is maintained within ± 10% at all loads up to rated capacity.

Welder Enclosure - The complete welder is rubber mounted on a rugged steel “C” channel base.

The output terminals are placed at the side of the machines so that they are protected by the door. The output terminals are labeled (+) and (-).

Cranking System - A 12 volt electric starter is standard.

Air Cleaner - Heavy duty two stage dry type.

Muffler - A muffler and exhaust outlet elbow are standard.

Engine Hour Meter - A meter to record hours of operation.

Engine Protection - The system shuts the engine down in the event of sudden low oil pressure or high coolant temperature.

Fuel Consumption - Fuel consumption has been optimized by means of careful design of the combustion chamber, fuel feed and injection system and cross-flow cylinder heads. In order to enhance longevity of the engine, the engine turns at a constant 1800 RPM and no engine idler is used.

As a result, there is no waiting time for the welder to achieve operating speed when striking an arc.

Fuel consumption figures at average operating loads are as follows:

Tank Capacity:
16 gallons, (60.6L) Plastic Tank.

Fuel Consumption:

High Idle-No Load	0.35 gallons/hr, (1.33 L/hr)
2400 watts	0.51 gallons/hr, (1.91 L/hr)
150 Amps@ 26V	0.60 gallons/hr, (2.28 L/hr)
200 Amps@ 28V	0.74 gallons/hr, (2.79 L/hr)
250 Amps@ 30V	0.91 gallons/hr, (3.44 L/hr)
300 Amps@ 32V	1.12 gallons/hr, (4.23 L/hr)

Operating Interval:
35 hours per tank

PRE-OPERATION INSTALLATION

⚠ 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.

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.

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.

See additional warning information at the front of this operator's manual.

Exhaust Spark Arrester

Some federal, state or local laws may require that engines 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 welder does not qualify as a spark arrester. When required by local regulations, a suitable spark arrester must be installed and properly maintained.

⚠ CAUTION

Use of an incorrect arrester may lead to engine damage or performance loss. Contact the engine manufacturer for specific recommendations.

Location / Ventilation

Always operate the welder with the doors closed. Leaving the doors open changes the designed air flow and may cause overheating.

The welder should be located to provide an unrestricted flow of clean, cool air. Also, locate the welder so that engine exhaust fumes are properly vented to an outside area.

Machine Grounding

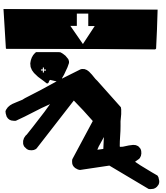
According to the United States National Electrical Code, the frame of this portable generator is not required to be grounded and is permitted to serve as the grounding means for cord connected equipment plugged into its receptacle.

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. A machine grounding stud marked with the symbol ⏚ is provided on the welding generator frame foot. 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 Code lists a number of alternate means of grounding electrical equipment.

Lift Bail

A lift bail is provided for lifting with a hoist.

⚠ WARNING



FALLING EQUIPMENT can cause injury.

• Lift only with equipment of adequate lifting capacity.
• Be sure machine is stable when lifting.
• Do not lift this machine using lift bail if it is equipped with a gas cylinder.
• Do not lift machine if lift bail is damaged.
• Do not operate machine while suspended from lift bail.
• DO NOT EXCEED MAXIMUM LIFT BAIL WEIGHT RATING.
(SEE TECHNICAL SPECIFICATIONS PAGE)

Trailer

If the user adapts a trailer, 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 trailer vs. weight of 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 trailer 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 trailer will be operated; environmental conditions, likely maintenance.

5. Conformance with federal, state and local laws. (1)

(1) Consult applicable federal, state and local laws regarding specific requirements for use on public highways.

VEHICLE MOUNTING

⚠ WARNING

Improperly mounted concentrated loads may cause unstable vehicle handling and tires or other components to fail.

- **Only transport this Equipment on serviceable vehicles which are rated and designed for such loads.**
- **Distribute, balance and secure loads so vehicle is stable under conditions of use.**
- **Do not exceed maximum rated loads for components such as suspension, axles and tires.**
- **Mount equipment base to metal bed or frame of vehicle.**
- **Follow vehicle manufacturer's instructions.**

Polarity Control and Cable Sizes

With the engine off, route the electrode and work cables and connect to the studs located below the fuel tank mounting rail. (See size recommendations below.) For **positive** polarity, connect the electrode cable to the terminal marked **"+"**. For **Negative** polarity, connect the electrode cable to the **"-"** stud. These connections should be checked periodically and tightened if necessary.

When welding at a considerable distance from the welder, be sure you use ample size welding cables.

RECOMMENDED COPPER CABLE SIZES

Amps	Duty Cycle	Cables Sizes for Combined Length of Electrode Plus Work Cable	
		Up to 200 ft.	200 to 250 ft.
300	60%	1/0	2/0
250	100%	1	1/0

PRE-OPERATION SERVICE

⚠ CAUTION

READ the engine operating and maintenance instructions supplied with this machine.

Oil

⚠ WARNING

- Stop engine while fueling.
- Do not smoke when fueling.
- Keep sparks and flame away from tank.
- Do not leave unattended while fueling.
- Wipe up spilled fuel and allow fumes to clear before starting engine.
- Do not overfill tank, fuel expansion may cause overflow.

DIESEL FUEL can cause fire.

DIESEL FUEL ONLY-Low sulphur fuel or ultra low sulphur fuel in U.S.A. and Canada.

This unit is supplied from the factory with the engine crankcase filled with a high quality SAE 10W/30 oil. This oil should be acceptable for most typical ambient temperatures. Consult the engine operation manual for specific engine manufacturer's recommendations. Upon receipt of the welder, check the engine dipstick to be sure the oil is at the "full" mark. DO NOT overfill.

Fuel

Fill the fuel tank with the grade of fuel recommended in the Engine Operator's manual.

Cooling System

The radiator has been filled at the factory with a 50-50 mixture of ethylene glycol antifreeze and water. Check the radiator level and add a 50-50 solution as needed (see engine manual or antifreeze container for alternate antifreeze recommendations).

BATTERY CHARGING

⚠ WARNING

GASES FROM BATTERY can explode.
- **Keep sparks, flame and cigarettes away.**

BATTERY ACID can burn eyes and skin.
- **Wear gloves and eye protection and be careful when boosting, charging or working near 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 ground lead on the base.

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 clamp until snug.

The D300K 3+3 SE is equipped with a wet charged battery. The charging current is automatically regulated when the battery is low (after starting the engine) to a trickle current when the battery is fully charged.

When replacing, jumping or otherwise connecting the battery to the battery cables, the proper polarity must be observed. This system is **NEGATIVE GROUND**.

ENGINE OPERATION

⚠ 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.

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.

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.

See additional warning information at the front of this operator's manual.

Operate the welder with the doors closed. Leaving the doors open changes the designed air flow and can cause overheating.

Starting the D300K 3+3 SE with Kubota Diesel Engine

Refer to the Welder Nameplate for starting instructions.

The D300K 3+3 SE's engine is equipped with **GLOW PLUGS.** The **GLOW PLUGS** should always be used to help start Kubota diesel engines. Follow the table below for approximate **GLOW PLUG** on times to be used prior to attempted starting:

Temperature	GLOW PLUGS ON time
Above 10ºC (50ºF)	No Preheat
-5ºC (23ºF) to 10ºC (50ºF)	5.0 sec.
Below -5ºC (23ºF)	15 sec.

Limits of continuous use 20 sec.

Note: Extreme cold weather starting may require longer glow plug operation as well as engine oil and coolant heating (using a block heater).

⚠ WARNING

Under NO conditions should ether or other starting fluids be used!

Stopping the Engine

1. Pull the "STOP" knob out and hold it out until the engine stops completely.

At the end of each day's welding, check the crankcase oil level to minimize moisture condensation in the tank. Also, running out of fuel tends to draw dirt into the fuel system.

When hauling the welder between job sites, close the fuel valve on the water separator.

BREAK-IN PERIOD

Lincoln Electric selects high quality, heavy-duty industrial engines for the portable welding machines we offer. While it is normal to see a small amount of crankcase oil consumption during initial operation, excessive oil use, wet stacking (oil or tar like substance at the exhaust port), or excessive smoke is not normal.

Larger machines with a capacity of 350 amperes and higher, which are operated at low or no-load conditions for extended periods of time are especially susceptible to the conditions described above. To accomplish successful engine break-in, most diesel-powered equipment needs only to be run at a reasonably heavy load within the rating of the welder for some period of time during the engine's early life. However, if the welder is subjected to extensive light loading, occasional moderate to heavy loading of the engine may sometimes be necessary. Caution must be observed in correctly loading a diesel/generator unit.

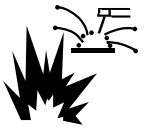
1. Connect the welder output studs to a suitable resistive load bank. Note that any attempt to short the output studs by connecting the welding leads together, direct shorting of the output studs, or connecting the output leads to a length of steel will result in catastrophic damage to the generator and voids the warranty.
2. Set the welder controls for an output current and voltage within the welder rating and duty cycle. Note that any attempt to exceed the welder rating or duty cycle for any period of time will result in catastrophic damage to the generator and voids the warranty.
3. Periodically shut off the engine and check the crankcase oil level.

WELDER 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.**

FUMES & GASES can be dangerous.
- **Keep your head out of the fumes.**
- **Use ventilation or exhaust to remove fumes from breathing zone.**



WELDING SPARKS can cause fire or explosion.
- **Keep flammable material away.**

ARC RAYS can burn.
- **Wear eye, ear, and body protection.**

Duty Cycle

The output rating of the D300K 3+3 SE is 300 amperes at 32 arc volts on a 60% duty cycle. Duty cycle is based on a ten minute period; thus, the welder can be loaded at rated output for six minutes out of every ten minute period.

Control of Welding Current

⚠ CAUTION

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

The "Current Range Selector" provides five overlapping current ranges. The "Fine Current Adjustment" adjusts the current from minimum to maximum within each range. Open circuit voltage is also controlled by the "Fine Current Adjustment" permitting control of the arc characteristics.

A high open circuit voltage setting provides the soft "buttering" arc with best resistance to pop-outs preferred for most welding. To get this characteristic, set the "Current Range Selector" to the lowest setting that still provides the current you need and set the "Fine Current Adjustment" near maximum. For example: to obtain 175 amps and a soft arc, set the "Current

Range Selector" to the 190-120 position and then adjust the "Fine Current Adjustment" for 175 amps.

When a forceful "digging" arc is required, usually for vertical and overhead welding, use a higher "Current Range Selector" setting and lower open circuit voltage. For example: to obtain 175 amps and a forceful arc, set the "Current Range Selector" to the 240-160 position and the "Fine Current Adjustment" setting to get 175 amps.

Some arc instability may be experienced with EXX10 electrodes when trying to operate with long arc techniques at settings at the lower end of the open circuit voltage range.

⚠ CAUTION

DO NOT attempt to set the "Current Range Selector" between the five points designated on the nameplate.

These switches have a spring loaded cam which almost eliminates the possibility of setting this switch between the designated points.

Auxiliary Power

The AC auxiliary power, supplied as standard, has a rating of 2400W of 120 VAC (60 hertz).

With the 2400W, 120 VAC auxiliary power one 120V duplex grounding type receptacle is provided. The circuit is protected with one GFCI with breaker.

The rating of 2400W permits a maximum continuous current of 26 amps that can be drawn from the 120 volt duplex receptacle. The 120 volt duplex receptacle or GFCI has a configuration which permits 20 amps to be drawn from either half. The total combined load of the duplex receptacle or GFCI is not to exceed 2400W.

If a GFCI is tripped, See the MAINTENANCE section for detailed information on testing and resetting the GFCI.

If auxiliary power is used simultaneously with welding, the current which can be used while maintaining voltage regulation within 10% is as follows:

Welding Current Amps (@ NEMA Arc Volts)	Using 120V Circuit, Amps	Total Auxiliary KVA
0	20	2.4
100	16	1.8
150	15	1.7
200	15	1.7
250	14	1.6

SAFETY PRECAUTIONS

⚠ WARNING

Have qualified personnel do the maintenance work. Turn the engine 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.

Do not put your hands near any rotating parts. If a problem cannot be corrected by following the instructions, take the machine to the nearest Red-D-Arc location.

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.**

ENGINE EXHAUST can kill.
- **Use in open, well ventilated areas or vent exhaust outside.**

MOVING PARTS can injure.
- **Do not operate with enclosure or guards off.**
- **Stop engine before servicing.**
- **Keep away from moving parts.**

See additional warning information throughout this operator's manual and

General Instructions

1. Blow out the welder and controls with an air hose at least once every two months. In particularly dirty locations, this cleaning may be necessary once a week. Use low pressure air to avoid driving dirt into the insulation.

2. "Current Range Selector" contacts should not be greased. To keep the contacts clean, rotate the current control through its entire range frequently. Good practice is to turn the handle from maximum to minimum setting twice each morning before starting to weld.

3. Put a drop of oil on the "Current Range Selector" shaft at least once every month.

4. Follow the engine service schedule in this manual and the detailed maintenance and troubleshooting in the engine manufacturer's manual.

Cooling System

The D300K 3+3 SE is equipped with a pressure radiator. Keep the radiator cap tight to prevent loss of coolant. Clean and flush the cooling system periodically to prevent clogging the passage and overheating the engine. When antifreeze is needed, always use the permanent type.

Bearings

This welder is equipped with a double-shielded ball bearing having sufficient grease to last indefinitely under normal service.

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.

Shifting of the commutator brushes may result in:
- Change in machine output
- Commutator damage
- Excessive brush wear

Periodically inspect the commutator, slip rings, and brushes by removing the covers. DO NOT remove or replace these covers while the machine is running. Commutators and slip rings require little attention. However, if they are black or appear uneven, have them cleaned by an experienced maintenance man using fine sandpaper or a commutator stone. Never use emery cloth or paper for this purpose.

Replace brushes when they wear within 1/4" of the pigtail. A complete set of replacement brushes should be kept on hand.

Have an experienced maintenance man seat these brushes by lightly stoning the commutator as the armature rotates at full speed until contact is made across the full face of the brushes. After stoning, blow out the dust with low pressure air.

Arcing or excessive exciter brush wear indicates a possible misaligned shaft. Have an authorized Service Shop check and realign the shaft.

Slip Rings

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.

⚠ CAUTION

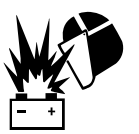
Do not attempt to polish slip rings while engine is running.

To seat slip ring brushes, position the brushes in place. Then slide one end of a piece of fine sandpaper between slip rings and brushes with the coarse side against the brushes. With slight additional finger pressure on top of the brushes, pull the sandpaper around the circumference of the rings - in direction of rotation only - until brushes seat properly. In addition, stone slip ring with a fine stone. Brushes must be seated 100%.

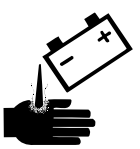
Battery

⚠ WARNING

GASES FROM BATTERY can explode.
- **Keep sparks, flame and cigarettes away from battery.**



To prevent EXPLOSION when:
- **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 engine foot.**



BATTERY ACID CAN BURN EYES AND SKIN.
- **Wear gloves and eye protection and be careful when working near battery. Follow instructions printed on battery.**

1. When replacing, jumping, or otherwise connecting the battery to the battery cables, the proper polarity must be observed. Failure to observe the proper polarity could result in damage to the charging circuit. The positive (+) battery cable has a red terminal cover.

2. If the battery requires charging from an external charger, disconnect the negative battery cable first and then the positive battery cable before attaching the charger leads. Failure to do so can result in damage to the internal charger components. When re-connecting the cables, connect the positive cable first and the negative cable last.

Hardware

Both English and Metric fasteners are used in this welder.

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.

ENGINE SERVICE

EVERY DAY OR EVERY 8 HOURS	FIRST SERVICE (50 HOURS)	EVERY 100 HOURS OR 3 MONTHS	EVERY 150 HOURS OR 4 MONTHS	EVERY 300 HOURS OR 9 MONTHS	EVERY 400 HOURS OR 12 MONTHS	EVERY 500 HOURS OR 15 MONTHS	EVERY 600 HOURS OR 18 MONTHS	ENGINE SERVICE (NOTE 2) MAINTENANCE ITEM	TYPE OR QUANTITY
I								Coolant level	
					I			Concentration of antifreeze	50/50 Water/Ethylene Glycol
							R	Coolant (NOTE 3)	7.82 qrts., 7.4 L
								Engine oil level (NOTE 1)	
	R		R					Engine oil (NOTE 1 & 3)	5.9 qrts., 5.6 L (including filter)
	R			R				Engine oil filter	Kubota #HH164-32430
		C						Drain water separator & fuel strainer	
					R			Fuel filter canister	Kubota #19077-43061
		C						Fuel pre-filter element	Kubota #15831-43353
		I						Tension of alternator drive belt	
		I						Alternator drive belt wear	
						R		Alternator drive belt	Kubota #17480-97010
		C						Air filter (earlier check may be req'd)	
					R			Air filter element	Donaldson #P821575
							I	Valve clearances	Intake .0071"-.0086", Exhaust .0071"-.0086"
							I	Electrical systems	
							I	All nuts and bolts for tightness	
I								Leaks or engine damage	
	I							Battery	

I = Inspect **C** = Clean **R** = Replace

Notes:

(1) Consult Engine Operators Manual for oil recommendations.
(2) Consult Engine Operators Manual for additional maintenance schedule information.
(3) Fill slowly! Ensure correct quantity is used.

Above operations to be carried out by trained personnel with reference to the workshop manual where necessary.
These preventative maintenance periods apply to average conditions of operation.
If necessary use shorter periods.

WARRANTY WORK PERFORMED ON THE ENGINE CONTAINED IN THIS MACHINE, IF NOT BILLABLE TO THE ENGINE MANUFACTURER, SHOULD BE PRE-APPROVED BY CALLING THE LINCOLN ELECTRIC COMPANY AT 888-935-3877

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GFCI TESTING AND RESETTING PROCEDURE

The GFCI should be properly tested at least once every month or whenever it is tripped. To properly test and reset the GFCI:

- If the GFCI has tripped, first carefully remove any load and check it for damage.
- If the equipment has been shut down, it must be restarted.
- The equipment needs to be operating at high idle speed and any necessary adjustments made on the control panel so that the equipment is providing at least 80 volts to the receptacle input terminals.
- The circuit breaker for this receptacle must not be tripped. Reset if necessary.
- Push the "Reset" button located on the GFCI. This will assure normal GFCI operation.
- Plug a night-light (with an "ON/OFF" switch) or other product (such as a lamp) into the Duplex receptacle and turn the product "ON".
- Push the "Test" button located on the GFCI. The night-light or other product should go "OFF".
- Push the "Reset" button, again. The light or other product should go "ON" again.

If the light or other product remains "ON" when the "Test" button is pushed, the GFCI is not working properly or has been incorrectly installed (miswired). If your GFCI is not working properly, contact a qualified, certified electrician who can assess the situation, rewire the GFCI if necessary or replace the device.

HOW TO USE TROUBLESHOOTING GUIDE

⚠ WARNING

Service and Repair should only be performed by 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.

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 Authorized Field Service Facility.

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

⚠ WARNING

Have qualified personnel do the troubleshooting work. Turn the engine 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.

Do not put your hands near the engine cooling blower fan. If a problem cannot be corrected by following the instructions, take the machine to the nearest Local Authorized Field Service Shop.

⚠ CAUTION

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

TROUBLESHOOTING

E-2

Observe all Safety Guidelines detailed throughout this manual

WELDER TROUBLESHOOTING

PROBLEMS (SYMPTOMS)	POSSIBLE CAUSE	RECOMMENDED COURSE OF ACTION
Machine fails to hold the heat consistently.	1. Rough or dirty commutator. Commutator should be turned or cleaned. 2. Brushes may be worn down to limit. Replace brushes. 3. Field circuit may have variable resistance connection or intermittent open circuit due to loose connection or broken wire. Check field current with ammeter to discover varying current. This applies to both the main generator and exciter. 4. Electrode lead or work lead connection may be poor. Tighten all connections. 5. Wrong grade of brushes may have been installed on generator. Use proper brushes. 6. Field rheostat may be making poor contact and overheating. Inspect and clean the rheostat.	If all recommended possible areas of misadjustment have been checked and the problem persists, **Contact your local Authorized Field Service Facility.**
Welder starts but fails to generate current.	1. Generator or exciter brushes may be loose or missing. Be sure that all brushes bear on the commutator and have proper spring tension. 2. Exciter may not be operating. Check exciter output voltage with voltmeter or lamp. 3. Field circuit of generator or exciter may be open. Check for open circuits in rheostat, field leads, and field coils. Check rectifier bridge and fuses. 4. Exciter may have lost excitation. Flash fields. 5. Series field and armature circuit may be open-circuited. Check circuit with ringer or voltmeter.	

⚠ CAUTION

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

Observe all Safety Guidelines detailed throughout this manual

WELDER TROUBLESHOOTING

(1) FLASHING THE FIELDS:

1. Stop the engine welder and remove the cover from the exciter.
2. Turn the “Fine Current Adjustment” (rheostat) to “100” on the dial.
3. Using a 12 volt automotive battery, connect it’s negative terminal to the negative brush holder. The negative brush holder is the one nearest to the rotor lamination. See the wiring diagram. With the engine NOT running, touch the positive battery terminal to the positive brush holder. Remove the battery from the circuit.
4. Replace the exciter cover. Start the welder and the generator voltage should build up.

PROBLEMS (SYMPTOMS)	POSSIBLE CAUSE	RECOMMENDED COURSE OF ACTION
Welding arc is loud and spatters excessively.	1. Current setting may be too high. Check setting and current output with ammeter. 2. Polarity may be wrong. Check polarity. Try reversing polarity or try an electrode of the opposite polarity.	If all recommended possible areas of misadjustment have been checked and the problem persists, **Contact your local Authorized Field Service Facility.**
Welding current too great or too small compared to indication on the dial.	1. Exciter output low causing low output compared to indication. Check exciter field circuit. 2. Operating speed too low or too high.	
Arc continuously pops out.	1. “Current Range Selector” switch may be set at an intermediate position.	

⚠ CAUTION

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

Observe all Safety Guidelines detailed throughout this manual

ENGINE TROUBLESHOOTING

PROBLEMS (SYMPTOMS)	POSSIBLE CAUSE	RECOMMENDED COURSE OF ACTION
Engine does not start.	1. Faulty Ignition switch and or Injector pump solenoid. Correct the connection and contact. 2. Insufficient charging or complete discharge of the battery. Charge. 3. Lack of fuel. Supply fuel. 4. Air mixed in the fuel system. 5. Clogged fuel filter. Replace. 6. Irregular and faulty fuel supply (Injector pump trouble). Repair in an authorized field service shop. 7. Glow plug not heated. Breakage of the glow plug; replace. 8. Improper viscosity of the lubricating oil. Inspect and replace. 9. Clogged air cleaner. Clean or replace. 10. No compression. Repair in a field service shop.	If all recommended possible areas of misadjustment have been checked and the problem persists, **Contact your local Authorized Field Service Facility.**
Irregular running of the engine.	1. Air mixed in the fuel system. 2. Uneven fuel injection (Faulty fuel injector pump). Repair in an authorized field service shop. 3. Clogged fuel filter. Replace. 4. Defective governor. Check and correct. 5. Engine itself defective. Repair in an authorized field service shop.	

⚠ CAUTION

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

Observe all Safety Guidelines detailed throughout this manual

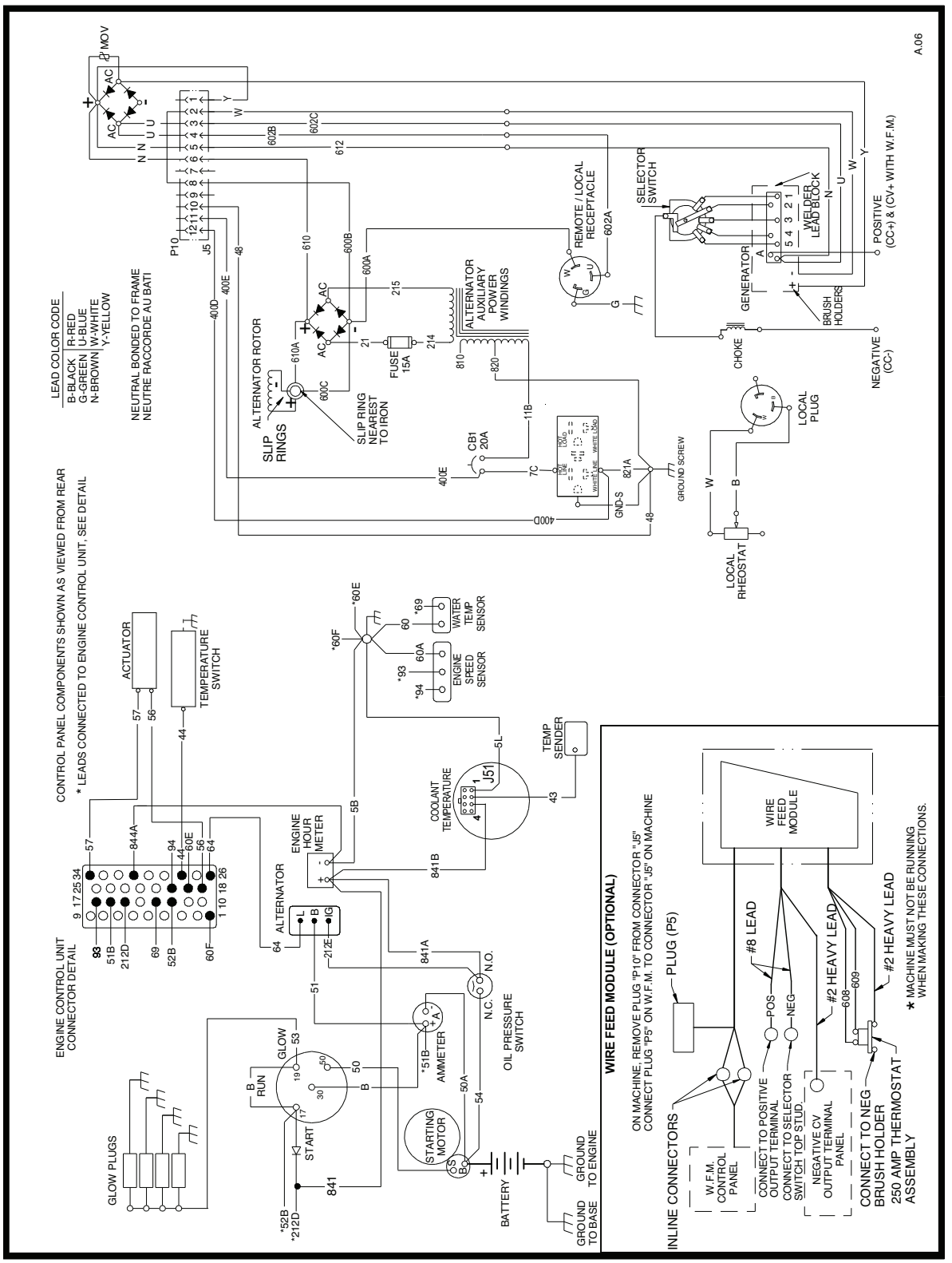
ENGINE TROUBLESHOOTING

PROBLEMS (SYMPTOMS)	POSSIBLE CAUSE	RECOMMENDED COURSE OF ACTION
Engine stops during operation.	1. Lack of fuel in the fuel tank. Supply fuel. 2. Clogged fuel filter. Replace. 3. Air mixed in the fuel system. 4. Faulty function of the engine. Repair in a service shop.	If all recommended possible areas of misadjustment have been checked and the problem persists, **Contact your local Authorized Field Service Facility.**
(White or Blue) Smoke.	1. Excess engine oil.Inspect and correct the level. 2. Too low viscosity of the engine oil. Inspect and replace the oil with proper grade. 3. Faulty injection timing. Repair in a service shop.	
Dark Grey Smoke.	1. Unsuitable fuel. Inspect and replace with correct grade. 2. Excess injection. Inspect and adjust (in a field service shop). 3. Faulty function of the engine. Repair in a field service shop. 4. Overloading. Reduce the load. 5. Clogged air cleaner. Clean.	
Faulty Charging.	1. Loose fan belt. Correct the tension. 2. Faulty wiring. Inspect and correct. 3. Faulty battery. Repair. 4. Worn out alternator brush. Replace.	
Starter Motor does not run.	1. Loose or damaged wiring. Inspect and tighten. 2. Dropped voltage of the battery. Charge the battery. 3. Damaged starter motor (including solenoid). Repair in a field service shop.	

⚠ CAUTION

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

D300K 3+3 SE - WIRING DIAGRAM



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NOTE: This diagram is for reference only. It may not be 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 equipment code number.

LINCOLN ELECTRIC | Service Navigator 2.0

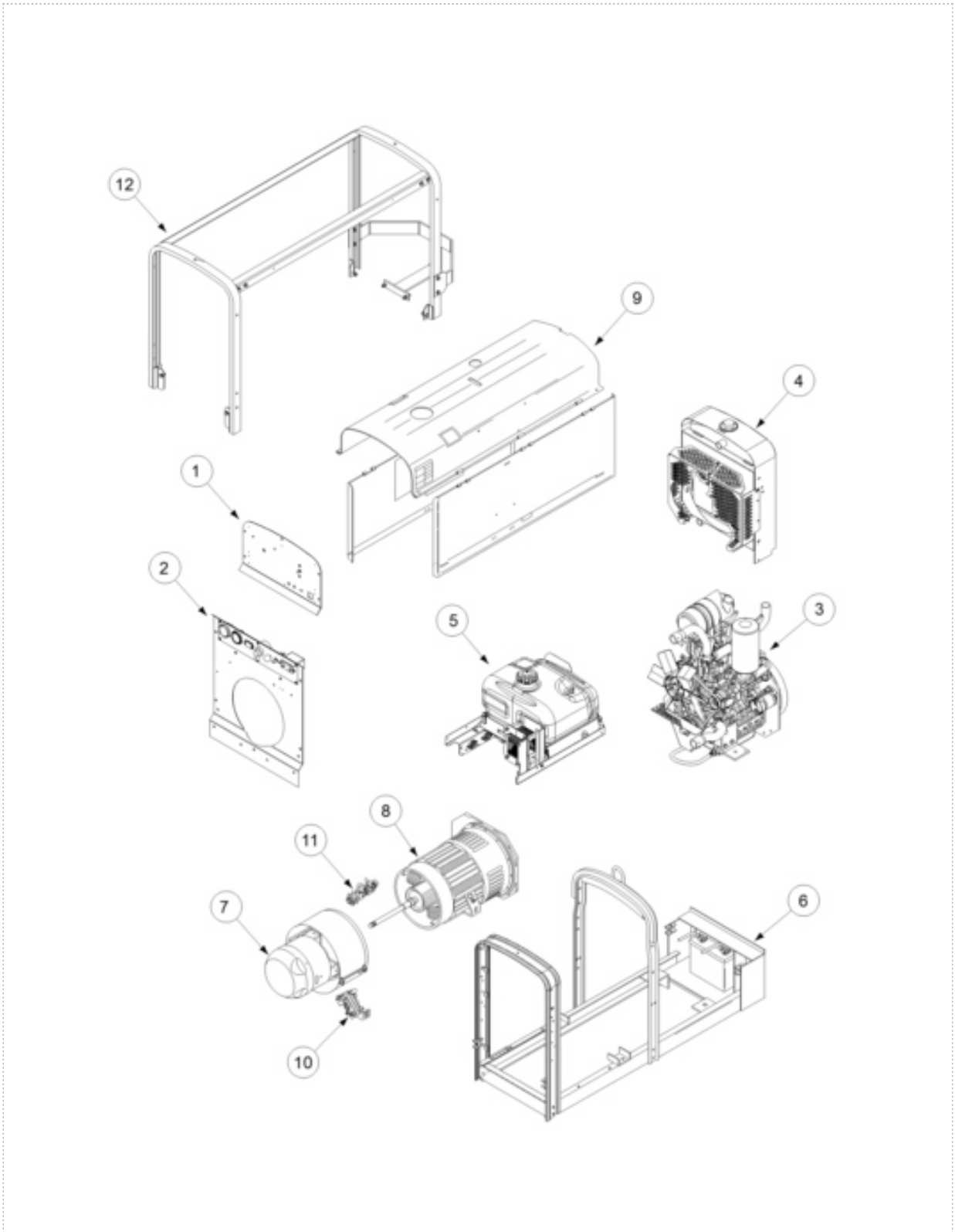
Red-D-Arc D300K 3+3 SE - 11948

Contents

Index of Sub Assemblies - 11948

KEY	PART NUMBER	DESCRIPTION	QTY
	P-737-A	INDEX OF SUB ASSEMBLIES	AR
	P-737-B.2	MISCELLANEOUS ITEMS	AR
1	P-737-C	UPPER CONTROL PANEL ASSEMBLY	AR
2	P-737-D	LOWER CONTROL PANEL ASSEMBLY	AR
3	P-737-E	ENGINE ASSEMBLY	AR
4	P-737-F	RADIATOR ASSEMBLY	AR
5	P-737-G	FUEL TANK ASSEMBLY	AR
6	P-737-H	BASE & LIFT BALE ASSEMBLY	AR
7	P-737-J	WELDING GENERATOR & COUPLING - 1 OF 2	AR
8	P-737-K	WELDING GENERATOR & COUPLING - 2 OF 2	AR
9	P-737-L	ROOF & DOORS	AR
10	P-737-M	ALTERNATOR BRUSH HOLDER	AR
11	P-737-N	GENERATOR BRUSH HOLDER	AR
12	P-737-P	ROLL CAGE ASSEMBLY	AR

Index of Sub Assemblies - 11948



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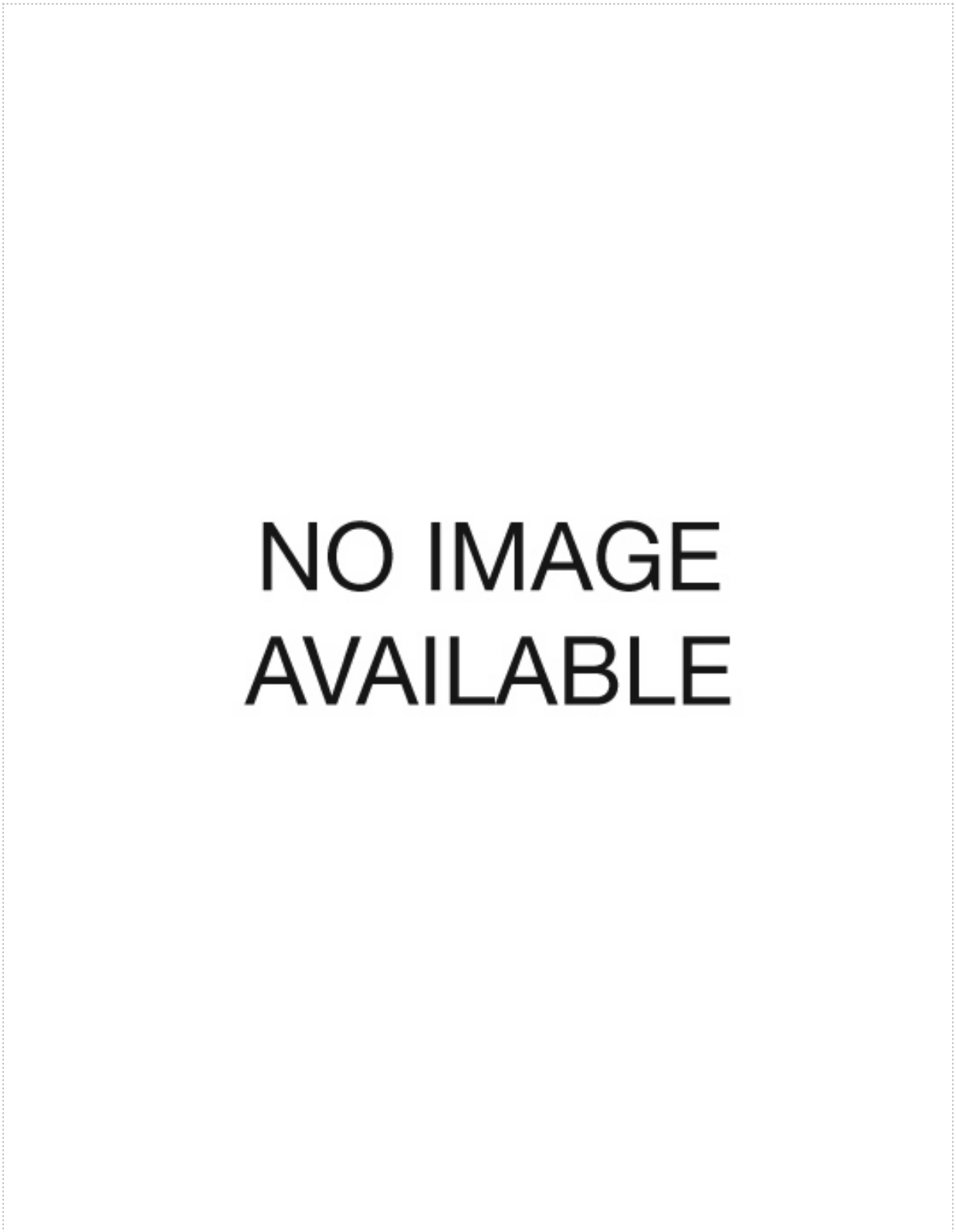
Miscellaneous Items

KEY	PART NUMBER	DESCRIPTION	QTY
	9SS14165-472	RECEPTACLE & LEAD ASBLY	1
	9SS14165-473	PLUG & LEAD ASBLY	1
	9SM8859-93	ENGINE MOUNTING	1
	9SS30143	FUEL SHUT OFF ROD	1
	9SS27402	SPRING	1
	9SG7547	HARNESS ASBLY	1
	9SS30169	EXHAUST OUTLET PIPE	1
	9SS30170	EXHAUST CLAMP	1
	9SS30174	CONNECTOR TERMINAL	2

Miscellaneous Items



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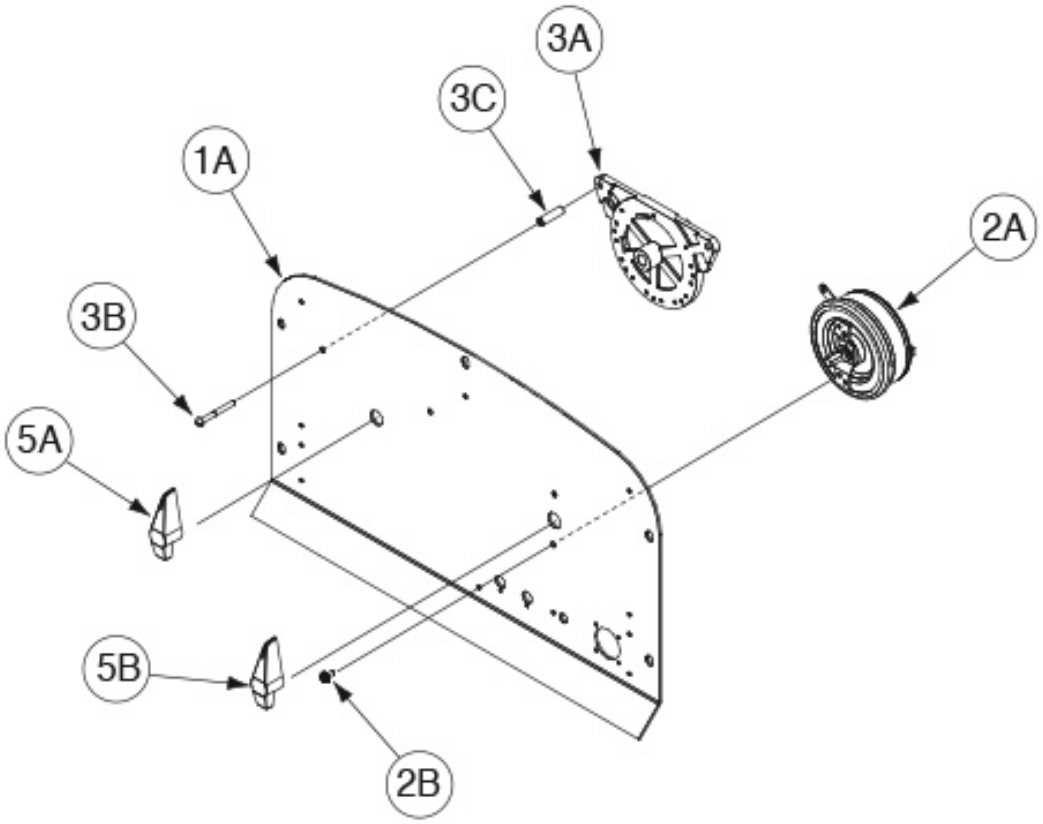
Upper Control Panel Assembly

KEY	PART NUMBER	DESCRIPTION	QTY
	9SM24976	UPPER CONTROL PANEL ASSEMBLY	1
1A	9SM24975	CONTROL PANEL UPPER	1
2A	9SM5090-C	RHEOSTAT	1
2B	9ST10082-4	SEMS SCREW	2
	9SCF000102	#8-32X.50BR-RHS	2
	9ST9695-3	LOCKWASHER	2
	9SCF000103	#8-32BR-HN	4
3A	9SM13335	SELECTOR SWITCH ASBLY	1
3B	9SCF000127	#10-24X1.75RHS-FULL-GR2-1427	2
3C	9SS10918-60	SPACER	2
	9SS9262-27	PLAIN WASHER	2
	9ST9695-1	LOCKWASHER	2
	9SCF000010	#10-24HN	2
	9SL16338	NAMEPLATE UPPER	1
	9SS8025-92	SELF TAPPING SCREW	8
5A	9SM13989-1	CONTROL HANDLE	1
5B	9SS16664-13	CONTROL HANDLE ASBLY	1

Upper Control Panel Assembly



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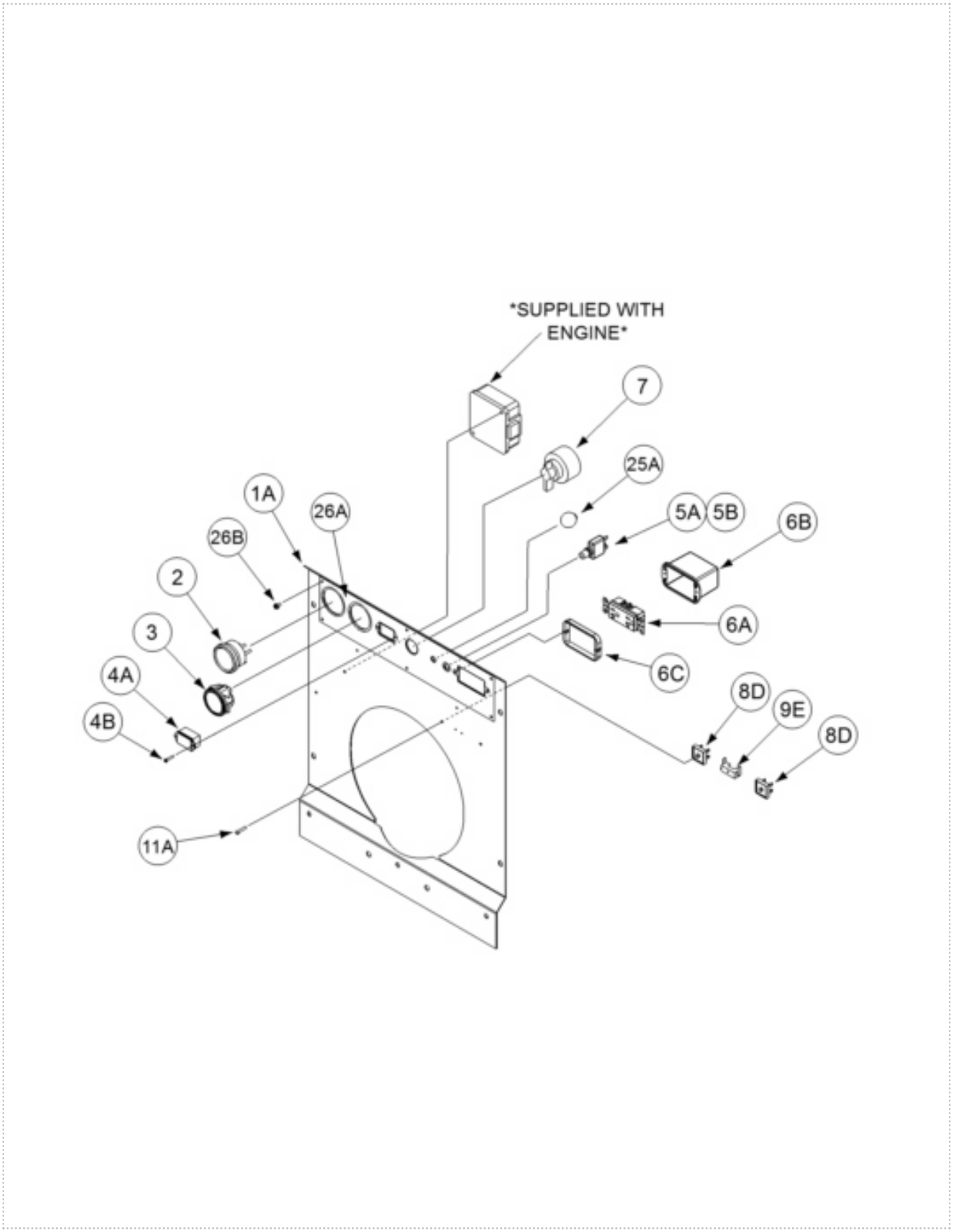
Lower Control Panel Assembly

KEY	PART NUMBER	DESCRIPTION	QTY
	9SG7548	LOWER CONTROL PANEL ASSEMBLY	1
1A	9SL16337	LOWER CONTROL PANEL	1
2	9SS7514-7	AMMETER	1
3	9SS25154-2	WATER TEMPERATURE GAUGE	1
4A	9SS17475-6	HOUR METER-MINIATURE	1
4B	9SS18825-1	PAN SCREW	2
	9ST9695-2	LOCKWASHER	2
	9SCF000005	#6-32HN	2
5A	9ST12287-31	CIRCUIT BREAKER-20A250VAC32VDC	1
5B	9SS22061-1	CIRCUIT BREAKER BOOT	1
6A	9SS24410	RECEPTACLEDUPLEXGFCI	1
6B	9SL13286	GFCI HOUSING	1
6C	9SS27167	MOUNTING BRACKET	1
	9SS24738-3	THERMOPLASTIC SCREW	2
	9SM16996	RECEPTACLE COVER	1
7	9SS29921	SWITCH START	1
	9SCF000042	#8-32HN	2
	9SCF000059	#8-32X.875RHS	2
	9SS9262-3	PLAIN WASHER	2
8D	9ST13637-5	DIODE-BRIDGE35A800VF-W1-PH	2
	9ST4291-A	LOCKWASHER	2
	9SCF000001	#4-40X.375RHS	1
	9SCF000002	#4-40HN	1
	9SS9262-39	PLAIN WASHER	1
	9ST10728-8	FUSE	1
9E	9ST15011-1	FUSE BLOCK	1
	9ST4291-B	LOCKWASHER	1
	9SCF000049	#10-24X2.75RHS	2
	9SS10918-69	SPACER	2
	9SS9262-27	PLAIN WASHER	2
	9ST9695-1	LOCKWASHER	2
	9SCF000010	#10-24HN	2
11A	9SS9225-36	THREAD FORMING SCREW (CUTTING)	2
	9ST9695-1	LOCKWASHER	2

Lower Control Panel Assembly

KEY	PART NUMBER	DESCRIPTION	QTY
	9SCF000010	#10-24HN	4
	9SS28445	MOV ASSEMBLY	1
25A	9ST10889	KNOB	1
	9ST12380-6	BUSHING	1
26A	9SL16339	NAMEPLATE LOWER	1
26B	9SS8025-92	SELF TAPPING SCREW	6
	9SM24953	GUARD CASE FRONT LEFT	1
	9SM24952	GUARD CASE FRONT RIGHT	1

Lower Control Panel Assembly



P-737-D.jpg

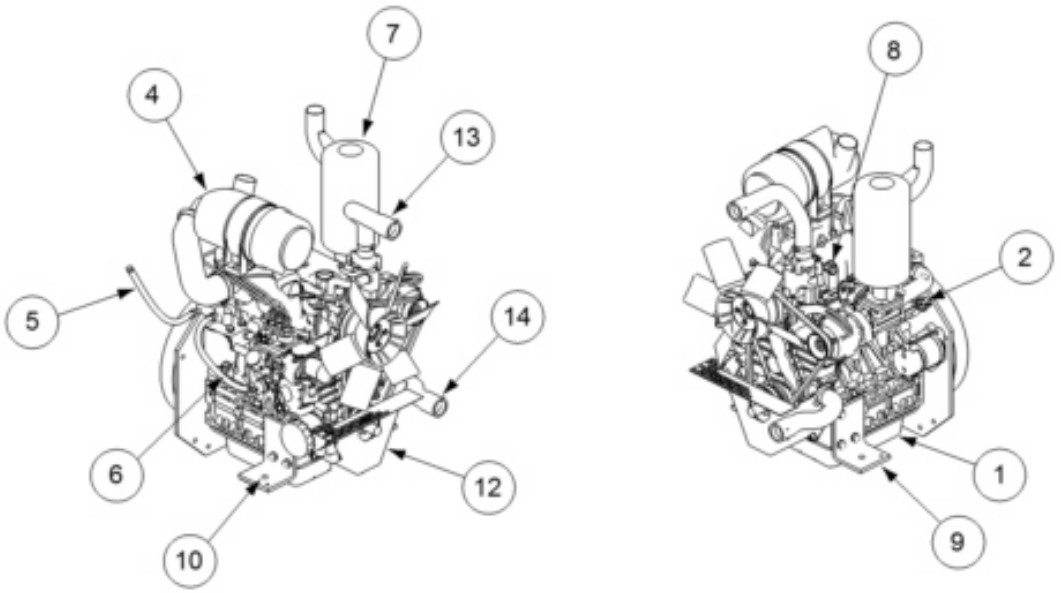
Engine Assembly

KEY	PART NUMBER	DESCRIPTION	QTY
	9SL16260-1	ENGINE ASSEMBLY	1
1	9SM24643	ENGINE	1
2	9SS14446	SWITCH	1
	9SS25853	45 DEGREE STREET ELBOW FITTING	1
	9SS29927	FUEL FILTER BRACKET	1
	9SCF000105	3/8-16X1.25HHCS	2
	9SCF000067	3/8-16HN	2
	9SE106A-16	LOCKWASHER	2
4	9SM24648	AIR CLEANER BRACKET	1
	9SS9262-120	PLAIN WASHER	2
	9SM20359	AIR FILTER MTG BAND	1
	9SM20358	AIR FILTER	1
	9SCF000028	5/16-18X1.25HHCS	2
	9SCF000029	5/16-18HN	2
	9SE106A-3	LOCKWASHER	2
	9SS9262-121	PLAIN WASHER	4
	9SM20357	AIR INTAKE HOSE	1
	9SS10888-33	HOSE CLAMP	2
5	9ST10642-86	FLEX TUBE	1
	9ST13777-1	HOSE CLAMP	2
6	9ST10642-187	FLEX TUBE	1
	9ST13777-1	HOSE CLAMP	2
7	9SL16574	MUFFLER RDA	1
8	9SS27248	WATER TEMPERATURE SENDER	1
	9SS27286	BUSHING 3/8" x 1/4" PIPE	1
9	9SM20367-1	ENGINE MTG FOOT	1
	9SS9262-80	PLAIN WASHER	3
10	9SM20367-2	ENGINE MTG FOOT	1
	9SS9262-80	PLAIN WASHER	3
12	9SL13687	FAN GUARD (BOTTOM)	1
	9ST14731-49	METRIC SOCKET HD SCREW-M10 X 1.25	2
	9SS17400-1	LOCKWASHER-METRIC	2
	9ST14731-3	METRIC HEX HD SCREW-M8 X1.25	1
	9SE106A-3	LOCKWASHER	1

Engine Assembly

KEY	PART NUMBER	DESCRIPTION	QTY
13	9SL12244	UPPER RADIATOR HOSE	1
	9SS10888-44	HOSE CLAMP	1
	9SS10888-8	HOSE CLAMP	1
14	9SL12245	LOWER RADIATOR HOSE	1
	9SS10888-44	HOSE CLAMP	1
	9SS10888-8	HOSE CLAMP	1

Engine Assembly

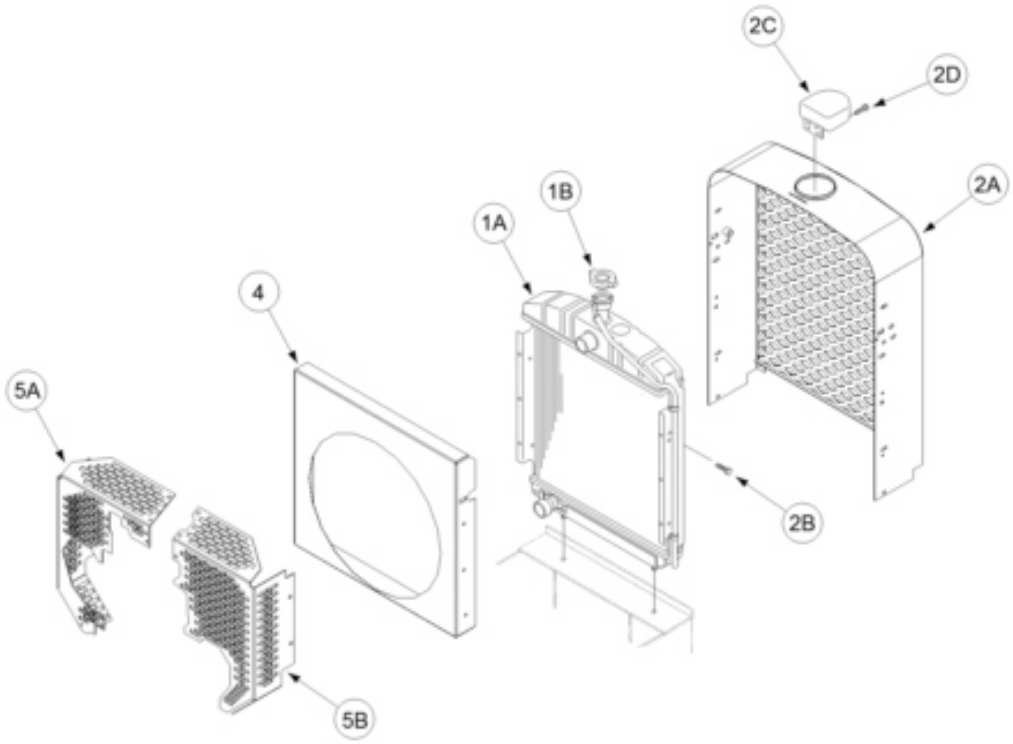


P-737-E.jpg

Radiator Assembly

KEY	PART NUMBER	DESCRIPTION	QTY
1A	9SG3432	RADIATOR	1
1B	9SS9970	RADIATOR CAP	1
	9ST9956	DRAIN COCK	1
2A	9SL5163-4	RADIATOR SHELL	1
2B	9SS9225-8	THREAD FORMING SCREW (ROLLING)	4
2C	9SM8003	RADIATOR CAP COVER ASBLY	1
2D	9SS8025-12	SELF TAPPING SCREW	2
4	9SM19051	FAN SHROUD ASBLY	1
5A	9SL16395	FAN GUARD (RIGHT)	1
5B	9SL16396	FAN GUARD (ALTERNATOR SIDE)	1

Radiator Assembly

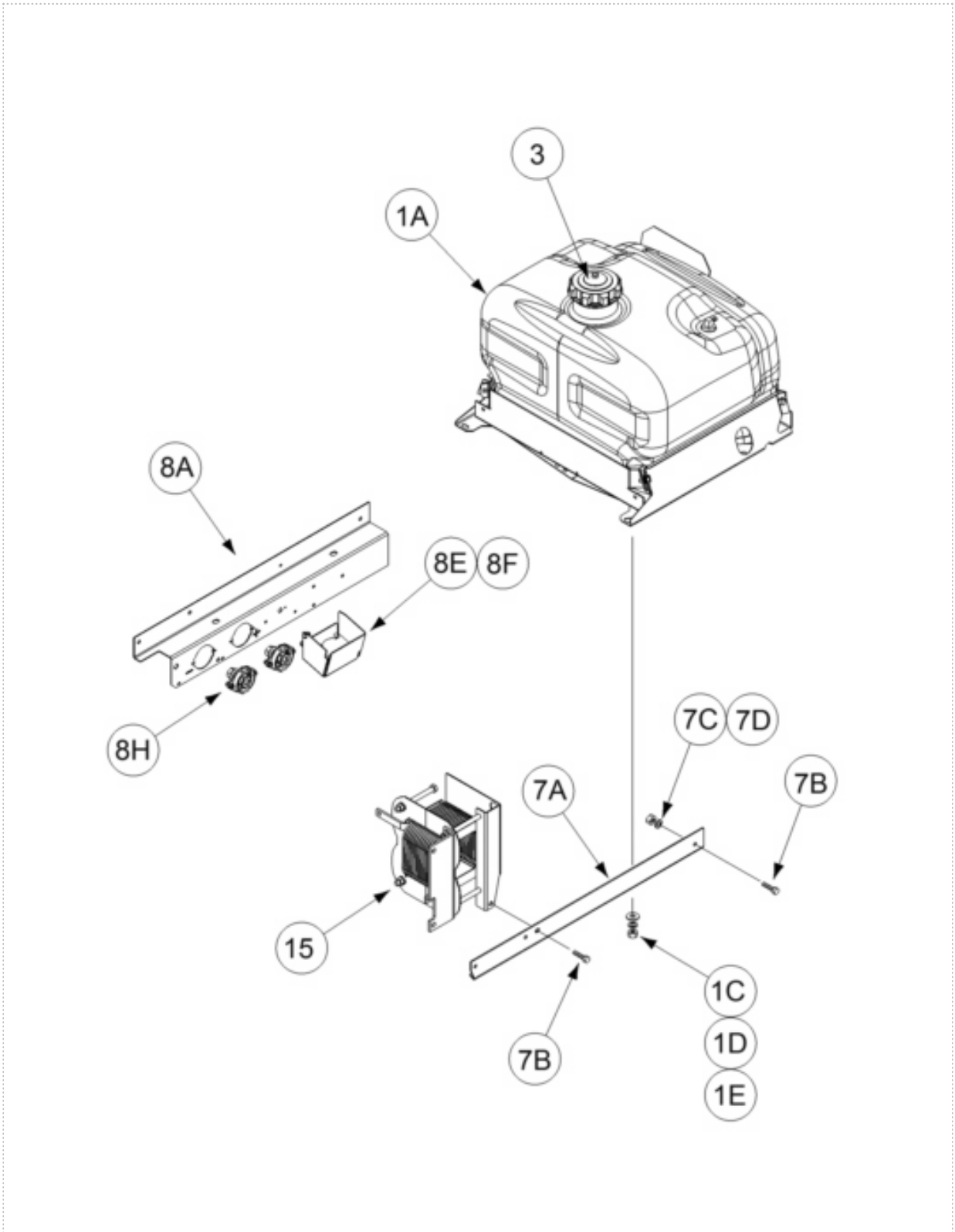


P-737-F.jpg

Fuel Tank Assembly

KEY	PART NUMBER	DESCRIPTION	QTY
1A	9SL15079	FUEL TANK AND RAIL ASSEMBLY	1
	9SCF000071	3/8-16X2.00HHCS	4
1C	9SS9262-56	PLAIN WASHER	8
1D	9SE106A-4	LOCKWASHER	4
1E	9SCF000067	3/8-16HN	4
	9SS10437-G	GASKET	1
3	9SS20541	FUEL CAP	1
	9ST13595	HOSE CONNECTOR	1
	9SS10888-35	HOSE CLAMP	2
7A	9SM12479-1	GAS TANK RAIL	1
7B	9SS9225-22	THREAD FORMING SCREW (ROLLING)	2
7C	9ST9860-3	LOCKWASHER	2
7D	9SCF000029	5/16-18HN	2
	9SM16685-4	OUTPUT PANEL ASBLY	1
8A	9SM13946-1	OUTPUT RAIL	1
	9SS9225-22	THREAD FORMING SCREW (ROLLING)	2
	9ST9860-3	LOCKWASHER	2
	9SCF000029	5/16-18HN	2
8E	9SM16779-2	REMOTE/LOCAL RECEPTACLE ASBLE	1
8F	9SM25075	REMOTE RECEPTACLE BRACKET	1
	9SS9225-8	THREAD FORMING SCREW (ROLLING)	2
8H	9ST14166-9	OUTPUT TERMINAL KIT	2
	9SS24765	GUARD (CASE FRONT)	1
	9ST10642-231	FLEX TUBE	1
	9ST10642-86	FLEX TUBE	1
15	9SM24836	COIL ASSEMBLY CHOKE	1

Fuel Tank Assembly

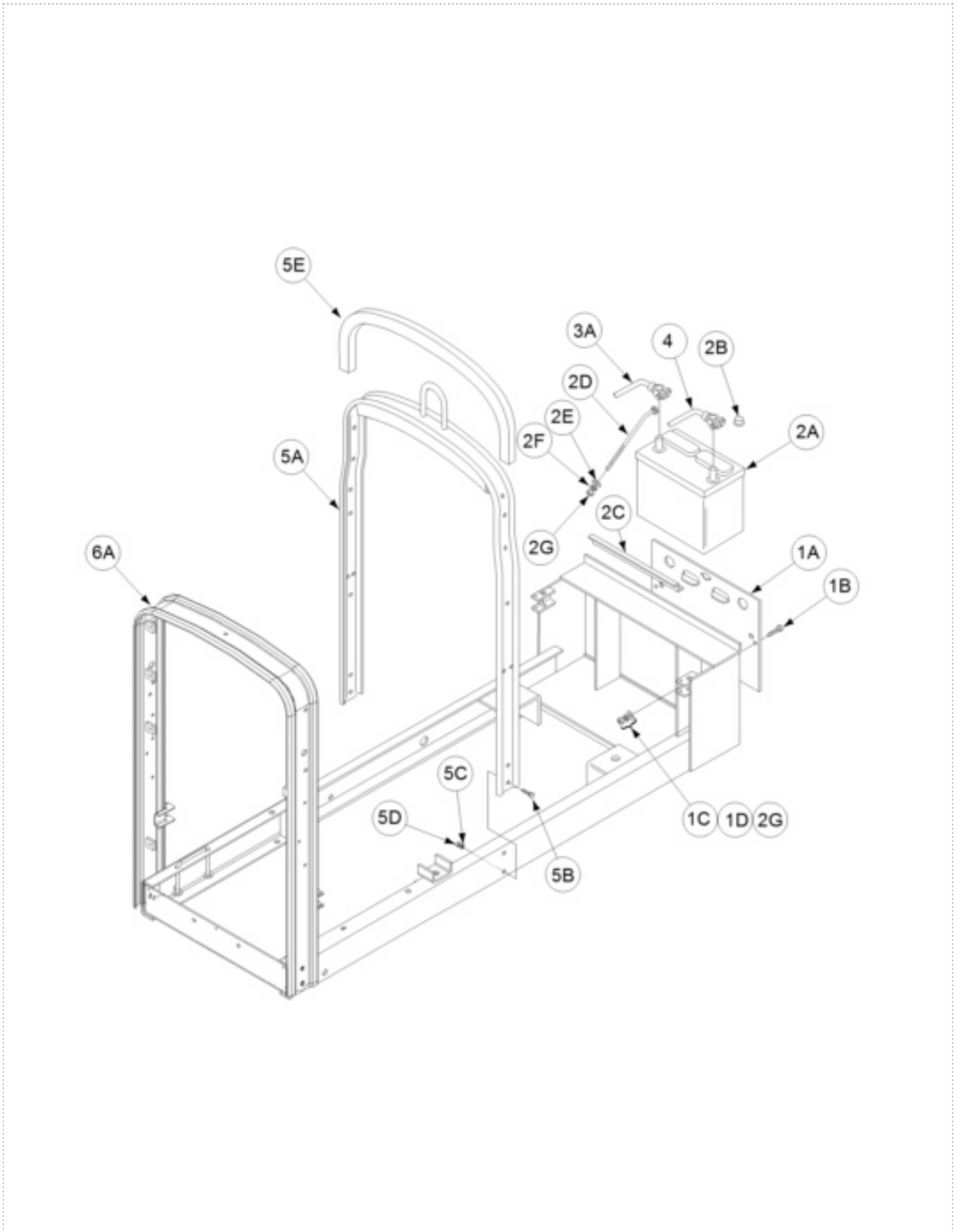


P-737-G.jpg

Base & Lift Bale Assembly

KEY	PART NUMBER	DESCRIPTION	QTY
	9SG7568	BASE ASBLY	1
1A	9SS15639-1	BATTERY MTG PANEL	1
1B	9SCF000012	1/4-20X.50HHCS	2
1C	9SE106A-2	LOCKWASHER	2
1D	9SS9262-23	PLAIN WASHER	2
2A	9SM9399-4	BATTERY	1
2B	9ST14654	CAP-PLASTIC	1
2C	9SS12128	BATTERY BRKT	1
2D	9ST11888	BATTERY HOLDER BOLT	2
2E	9SS9262-23	PLAIN WASHER	2
2F	9SE106A-2	LOCKWASHER	2
2G	9SCF000017	1/4-20HN	2
3A	9SS8070-29	BATTERY CABLE	1
	9SS24469	CLIP (CABLE)	1
	9ST11525-5	SPEED NUT1/4-20	1
	9SS9225-8	THREAD FORMING SCREW (ROLLING)	1
4	9SS14922-1	BATTERY CABLE & GROUND STRAP	1
	9SS9225-26	THREAD FORMING SCREW (ROLLING)	2
5A	9SL9084	LIFT BALE & HOOK ASBLY	1
5B	9ST8833-24	HEX HD CAP SCREW	4
5C	9SE106A-5	LOCKWASHER	4
5D	9SCF000027	1/2-13HN	4
5E	9SM15045-37	ACOUSTICAL FOAM	1
6A	9SM8237-15	REAR SUPPORT ASBLY	1
	9SCF000019	3/8-16X1.00HHCS 10	4
	9SS9262-120	PLAIN WASHER	4
	9SE106A-16	LOCKWASHER	4
	9SCF000067	3/8-16HN	4
	9SCF000029	5/16-18HN	4

Base & Lift Bale Assembly

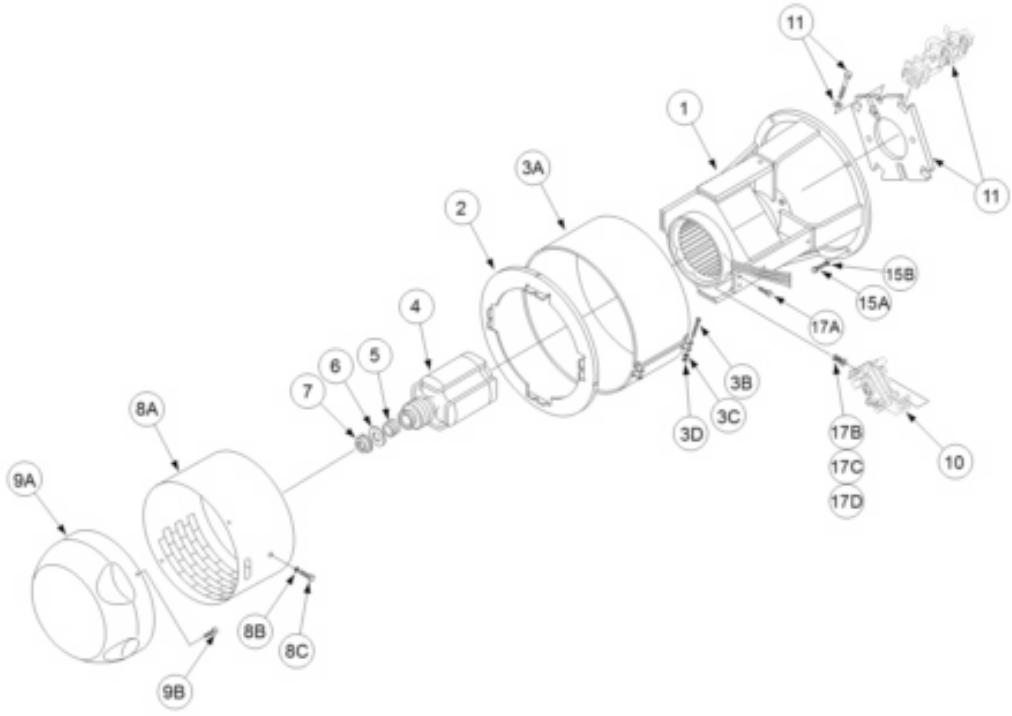


P-737-H.jpg

Welding Generator & Coupling - 1 of 2

KEY	PART NUMBER	DESCRIPTION	QTY
1	9SL6061-7	END BRACKET	1
2	9SM13683	BAFFLE	1
	9SS9225-8	THREAD FORMING SCREW (ROLLING)	4
	9SS9262-23	PLAIN WASHER	4
	9ST9860-6	LOCKWASHER	4
3A	9SL3391-46	COVER	1
3B	9SCF000143	1/4-20X2.00RHS	2
3C	9SE106A-2	LOCKWASHER	2
3D	9SCF000232	1/4-20SQN	2
4	9SM13641-4	M13641-4 ROTOR ASBLY	1
5	9ST14337	ARMATURE SLEEVE COLLAR	1
6	9ST7090-1	EXCITER NUT WASHER	1
7	9ST6225-1	EXCITER LOCK NUT	1
8A	9SL8254	EXCITER WRAPAROUND COVER	1
8B	9ST9860-6	LOCKWASHER	3
8C	9SS9225-8	THREAD FORMING SCREW (ROLLING)	3
9A	9SL6129-1	EXCITER COVER	1
9B	9SS8025-91	SELF TAPPING SCREW	4
10	9SM16158	BRUSH & BRUSH HOLDER ASBLY	1
11	9SS13247-54	ROCKER & BRUSH HOLDER ASSEMBLY	1
	9ST2687	BRUSH	8
15A	9ST8833-2	HEX HD CAP SCREW	4
15B	9SE106A-8	LOCKWASHER	4
17A	9SCF000014	1/4-20X.75HHCS	2
17B	9SS9262-23	PLAIN WASHER	2
17C	9SE106A-2	LOCKWASHER	2
17D	9SCF000017	1/4-20HN	2

Welding Generator & Coupling - 1 of 2

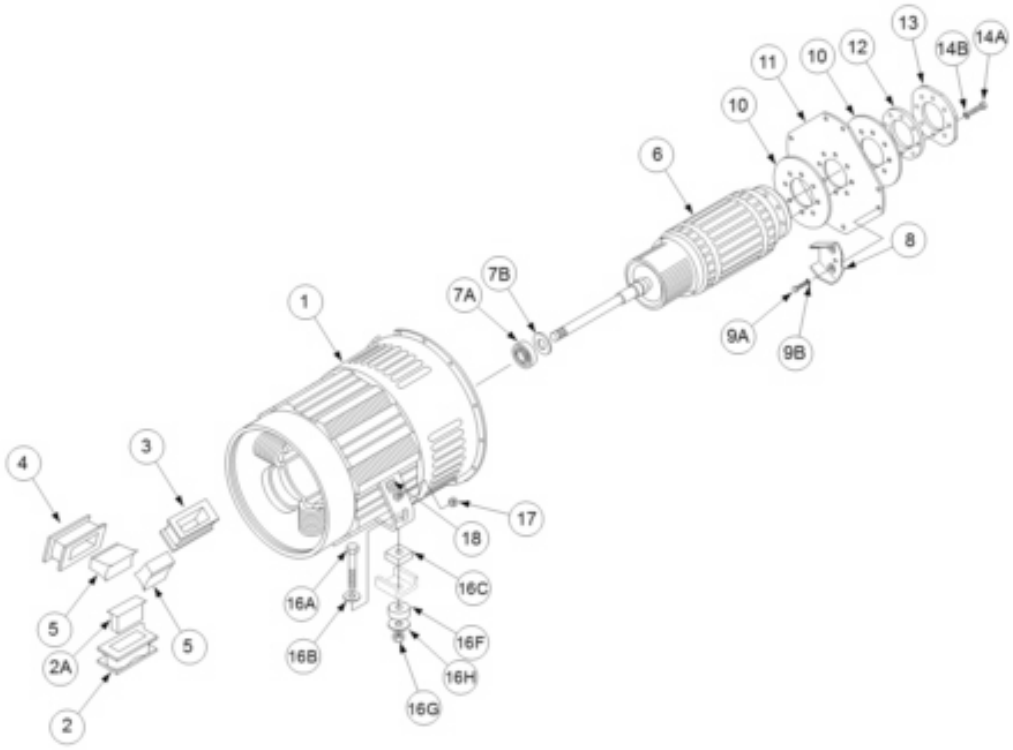


P-737-J.jpg

Welding Generator & Coupling - 2 of 2

KEY	PART NUMBER	DESCRIPTION	QTY
	9SL8576-13	GENERATOR ASBLY	1
1	9SL9137-4	FRAME TURNING SECTION	1
	9SS12261-26	INTERPOLE COIL & LAMINATION	4
2	9SS12261-26A	INTERPOLE COIL	4
2A	9SS12260-8	INTERPOLE LAMINATION ASBLY	4
3	9SL1741-82	SHUNT COIL-TOP	1
3	9SL1741-83	SHUNT COIL-BOTTOM	1
4	9SL16319-1	MAIN POLE COIL-SERIES TOP	1
4	9SL16319-2	MAIN POLE COIL-SERIES BOTTOM	1
5	9SS10745-14	MAINPOLE ASBLY	4
6	9SM7014-14	ARMATURE ASBLY	1
7A	9SM9300-180	BEARING 6308 SEALED	1
7B	9SS18541	BEARING SHOULDER RING	1
8	9SM14361	BLOWER PADDLE-SET OF 4	1
9A	9ST8833-44	HEX HD CAP SCREW	8
9B	9SE106A-8	LOCKWASHER	8
10	9SS8042	COUPLING DISC BACKING PLATE	2
11	9SM6730	COUPLING DISC	1
12	9SS14233	COUPLING CLAMP RING-INSIDE	1
13	9SS14232	COUPLING CLAMP RING-OUTSIDE	1
14A	9ST8833-2	HEX HD CAP SCREW	8
14B	9SE106A-8	LOCKWASHER	8
	9SCF000019	3/8-16X1.00HHCS 10	5
	9SE106A-16	LOCKWASHER	5
16A	9SCF000123	1/2-13X2.75HHCS	2
16B	9SS9262-1	PLAIN WASHER	2
16C	9ST8823	RUBBER PAD	2
	9SS10040-86	MTG BRKT	2
16F	9ST8822	RUBBER PAD	2
16G	9ST9187-4	LOCKNUT	2
16H	9SS9262-5	PLAIN WASHER	2
17	9SCF000067	3/8-16HN	2
18	9ST13260-4	DECAL-EARTH GROUND CONN	2

Welding Generator & Coupling - 2 of 2

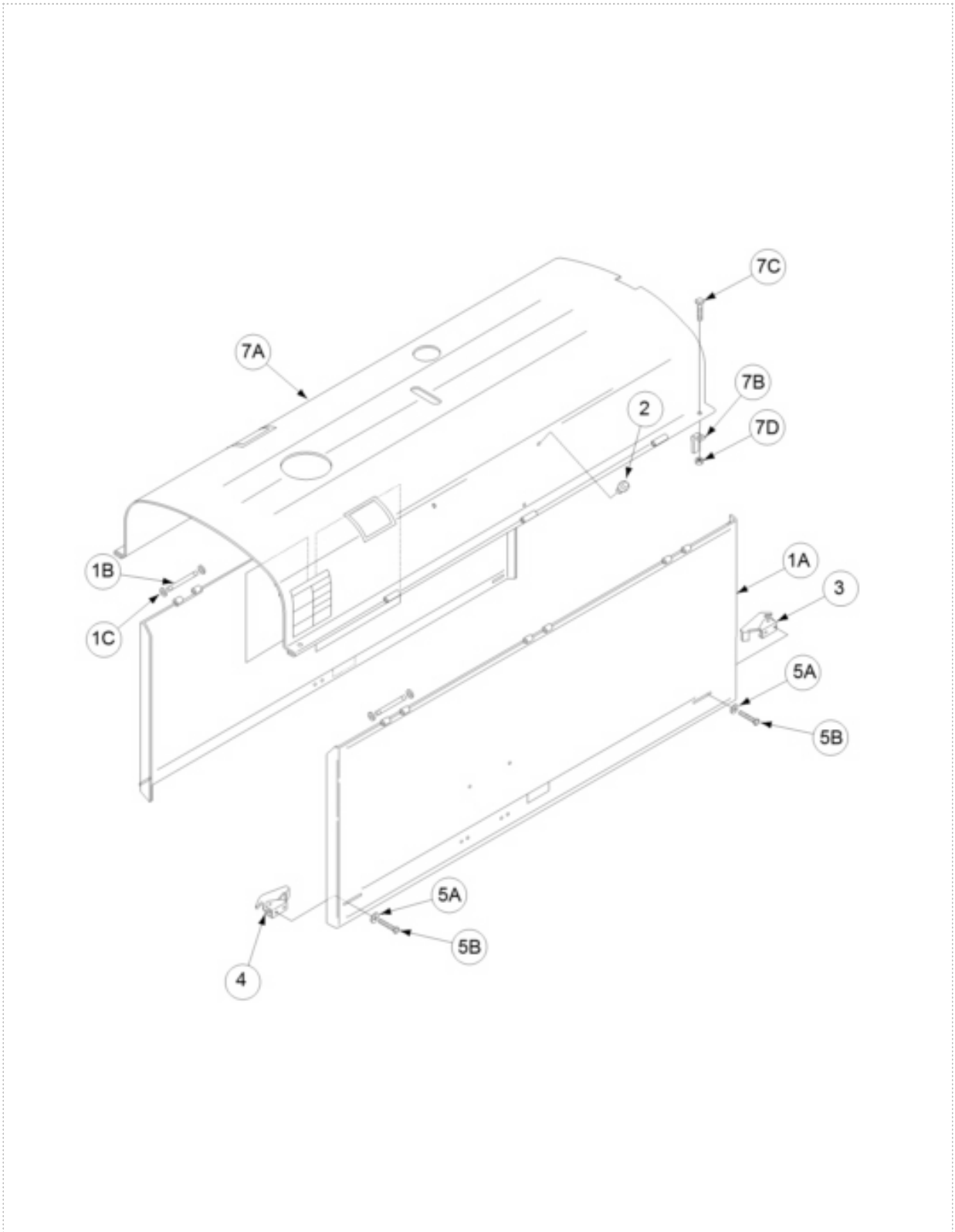


P-737-K.jpg

Roof & Doors

KEY	PART NUMBER	DESCRIPTION	QTY
1B	9SS20295	DOOR HINGE PIN	6
1C	9SS9776-62	RETAINING RING	12
2	9ST15154	DOOR BUMPER	4
3	9SS10656-3	DOOR HOOK ASBLY	2
4	9SS10656-4	DOOR HOOK ASBLY	2
5A	9ST10878	WASHER	4
5B	9SS8025-92	SELF TAPPING SCREW	8
7A	9SL5193-7	ROOF	1
7B	9SS13593	ROOF MTG ANGLE	4
7C	9SCF000258	5/16-18X1.50SQHS	4
7D	9ST9187	LOCKNUT	4
	9SS25896-1	WARNING DECAL	1
	9SM21436	CARBON MONOXIDE WARNING DECAL	1
	9ST13086-205	FUEL WARNING DECAL	1
	9SS30157	DOOR SLIDER RDA	2
	9SM24777	WIRING DIAGRAM	1

Roof & Doors

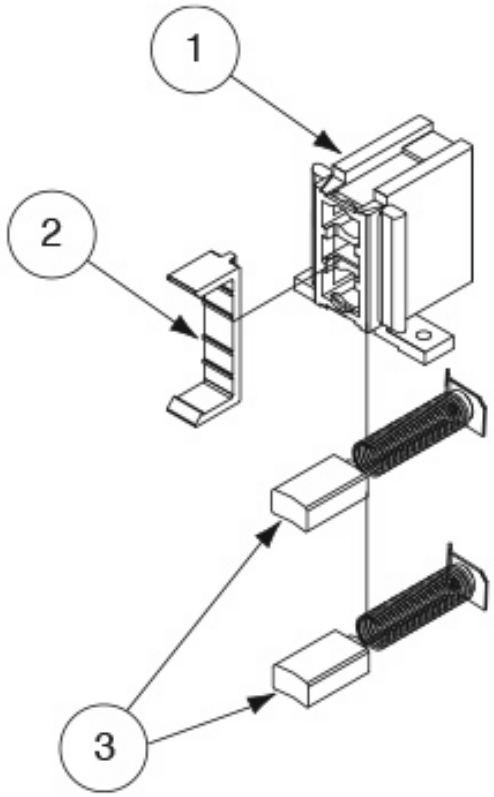


P-737-L.jpg

Alternator Brush Holder

KEY	PART NUMBER	DESCRIPTION	QTY
	9SM16158	BRUSH & BRUSH HOLDER ASBLY	1
1	9SG2114	BRUSH HOLDER CARTRIDGE	1
2	9SM16157	BRUSH ASBLY RETAINER	1
3	9SS19480	BRUSH ASBLY	2
	9SM19896	BRUSH HOLDER BRACKET (SS)	1

Alternator Brush Holder

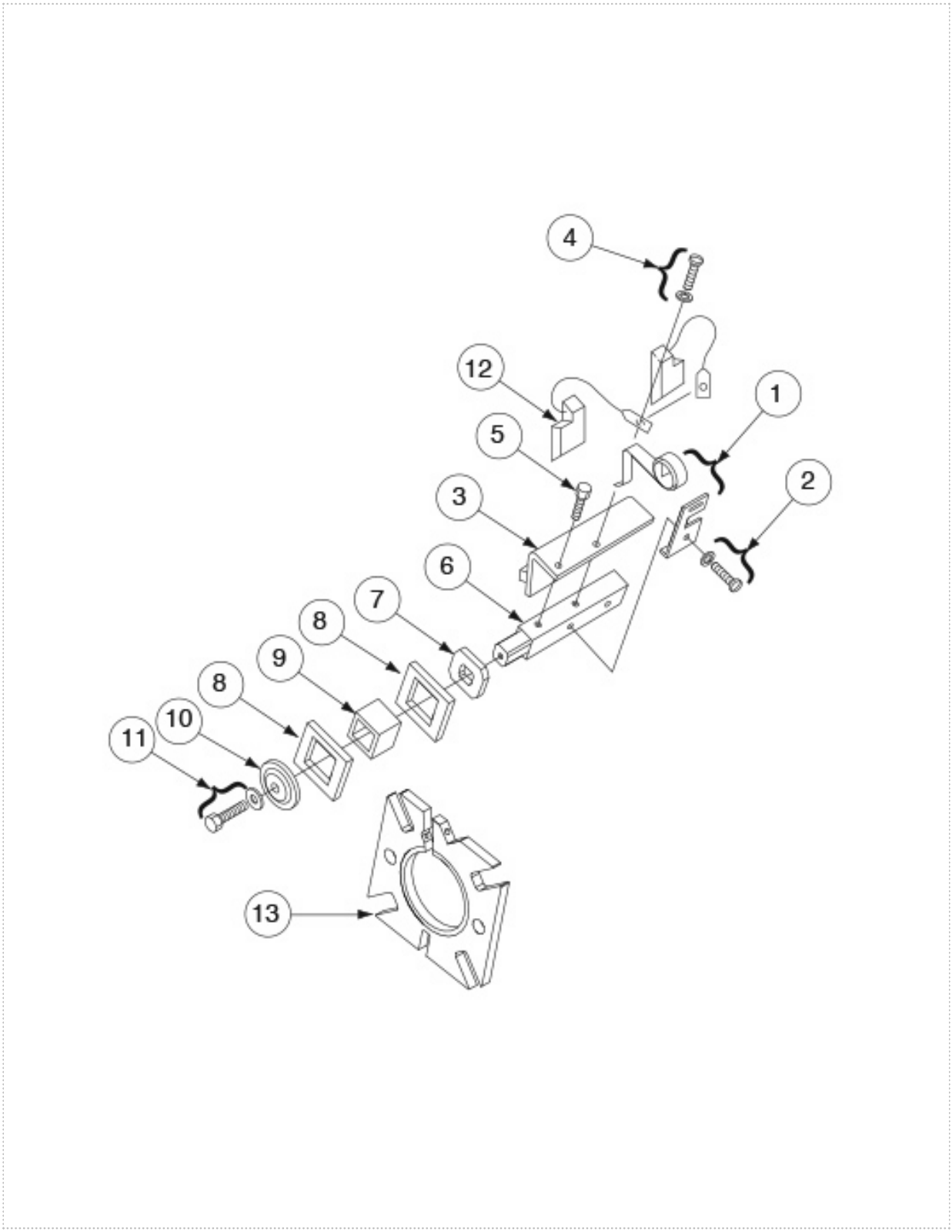


P-737-M.jpg

Generator Brush Holder

KEY	PART NUMBER	DESCRIPTION	QTY
	9SS13247-54	ROCKER & BRUSH HOLDER ASSEMBLY	1
1	9ST8495	BRUSH HOLDER SPRING & CLIP ASBLY	2
2	9SCF000040	5/16-18X.75HHCS	2
3	9SM6304-2B	RETAINER	1
4	9SCF000040	5/16-18X.75HHCS	1
5	9SCF000106	5/16-18X.625HHCS	1
6	9SM6963-4	BRUSH HOLDER STUD	1
7	9ST9020	PLAIN WASHER	1
8	9ST4479	INSULATING WASHER	2
9	9SS13721-1	BRUSH HOLDER STUD INSULATION	1
10	9ST2414	CLAMPING WASHER	1
11	9SCF000019	3/8-16X1.00HHCS 10	1
11	9SE106A-16	LOCKWASHER	1
12	9ST2687	BRUSH	8
13	9SS16986-1	ROCKER ASBLY	1
	9SM9857-1	ROCKER	1
	9SE106A-2	LOCKWASHER	1
	9ST8833-22	HEX HD CAP SCREW	1

Generator Brush Holder

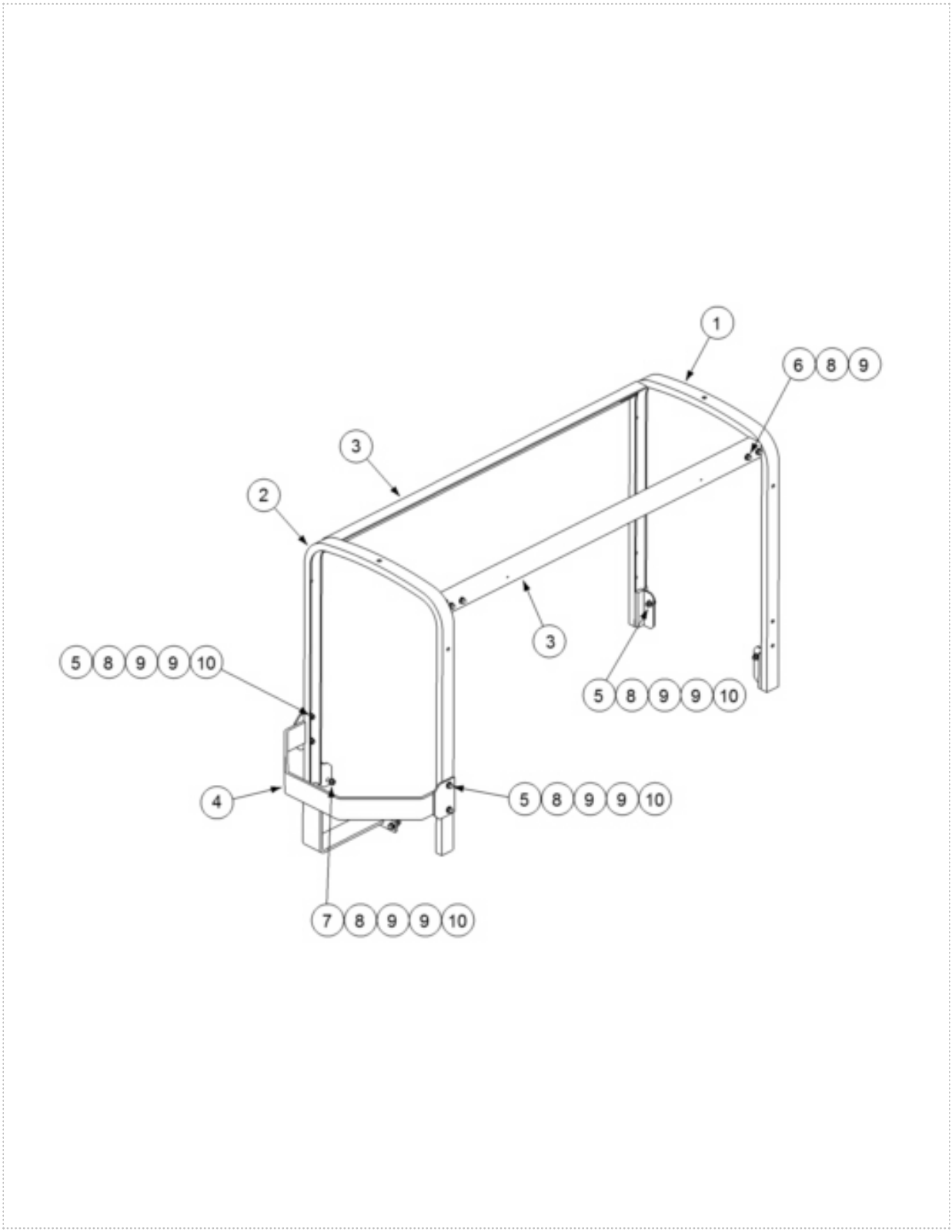


P-737-N.jpg

Roll Cage Assembly

KEY	PART NUMBER	DESCRIPTION	QTY
1	9SL16582	ROLL CAGE ASSEMBLY	1
	9SM25108	REAR SUPPORT ASSY	1
2	9SM25085	FRONT SUPPORT ASSY	1
3	9SM25109	SIDE RAIL	2
4	9SM25086	BULLNOSE ASSBLY	1
5	9SCF000019	3/8-16X1.00HHCS 10	6
6	9SCF000034	3/8-16X.75HHCS	8
7	9SCF000066	3/8-16X1.50HHCS	4
8	9SE106A-16	LOCKWASHER	18
9	9SS9262-120	PLAIN WASHER	28
10	9SCF000067	3/8-16HN	10

Roll Cage Assembly



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WARNING	● Do not touch electrically live parts or electrode with skin or wet clothing. ● Insulate yourself from work and ground.	● Keep flammable materials away.	● Wear eye, ear and body protection.
Spanish **AVISO DE PRECAUCION**	● No toque las partes o los electrodos bajo carga con la piel o ropa mojada. ● Aislese del trabajo y de la tierra.	● Mantenga el material combustible fuera del área de trabajo.	● Protéjase los ojos, los oídos y el cuerpo.
French **ATTENTION**	● Ne laissez ni la peau ni des vêtements mouillés entrer en contact avec des pièces sous tension. ● Isolez-vous du travail et de la terre.	● Gardez à l'écart de tout matériel inflammable.	● Protégez vos yeux, vos oreilles et votre corps.
German **WARNUNG**	● Berühren Sie keine stromführenden Teile oder Elektroden mit Ihrem Körper oder feuchter Kleidung! ● Isolieren Sie sich von den Elektroden und dem Erdboden!	● Entfernen Sie brennbarres Material!	● Tragen Sie Augen-, Ohren- und Körperschutz!
Portuguese **ATENÇÃO**	● Não toque partes elétricas e electrodos com a pele ou roupa molhada. ● Isole-se da peça e terra.	● Mantenha inflamáveis bem guardados.	● Use proteção para a vista, ouvido e corpo.
Japanese **注意事項**	● 通電中の電気部品、又は溶材にヒフやぬれた布で触れないこと。 ● 施工物やアースから身体が絶縁されている様にして下さい。	● 燃えやすいものの側での溶接作業は絶対にしてはなりません。	● 目、耳及び身体に保護具をして下さい。
Chinese **警 告**	● 皮肤或濕衣物切勿接觸帶電部件及銲條。 ● 使你自己與地面和工件絕緣。	● 把一切易燃物品移離工作場所。	● 佩戴眼、耳及身體勞動保護用具。
Korean **위 험**	● 전도체나 용접봉을 젖은 헝겁 또는 피부로 절대 접촉치 마십시요. ● 모재와 접지를 접촉치 마십시요.	● 인화성 물질을 접근 시키지 마시요.	● 눈, 귀와 몸에 보호장구를 착용하십시요.
Arabic **تحذير**	● لا تلمس الاجزاء التي يسري فيها التيار الكهربائي أو الالكترود بجلد الجسم أو بالملابس المبللة بالماء. ● ضع عازلا على جسمك خلال العمل.	● ضع المواد القابلة للاشتعال في مكان بعيد.	● ضع أدوات وملابس واقية على عينيك وأذنيك وجسمك.

READ AND UNDERSTAND THE MANUFACTURER'S INSTRUCTION FOR THIS EQUIPMENT AND THE CONSUMABLES TO BE USED AND FOLLOW YOUR EMPLOYER'S SAFETY PRACTICES.

SE RECOMIENDA LEER Y ENTENDER LAS INSTRUCCIONES DEL FABRICANTE PARA EL USO DE ESTE EQUIPO Y LOS CONSUMIBLES QUE VA A UTILIZAR, SIGA LAS MEDIDAS DE SEGURIDAD DE SU SUPERVISOR.

LISEZ ET COMPRENEZ LES INSTRUCTIONS DU FABRICANT EN CE QUI REGARDE CET EQUIPMENT ET LES PRODUITS A ETRE EMPLOYES ET SUIVEZ LES PROCEDURES DE SECURITE DE VOTRE EMPLOYEUR.

LESEN SIE UND BEFOLGEN SIE DIE BETRIEBSANLEITUNG DER ANLAGE UND DEN ELEKTRODENEINSATZ DES HERSTELLERS. DIE UNFALLVERHÜTUNGSVORSCHRIFTEN DES ARBEITGEBERS SIND EBENFALLS ZU BEACHTEN.

			
● Keep your head out of fumes. ● Use ventilation or exhaust to remove fumes from breathing zone.	● Turn power off before servicing.	● Do not operate with panel open or guards off.	**WARNING**
● Los humos fuera de la zona de respiración. ● Mantenga la cabeza fuera de los humos. Utilice ventilación o aspiración para gases.	● Desconectar el cable de alimentación de poder de la máquina antes de iniciar cualquier servicio.	● No operar con panel abierto o guardas quitadas.	Spanish **AVISO DE PRECAUCION**
● Gardez la tête à l'écart des fumées. ● Utilisez un ventilateur ou un aspirateur pour ôter les fumées des zones de travail.	● Débranchez le courant avant l'entretien.	● N'opérez pas avec les panneaux ouverts ou avec les dispositifs de protection enlevés.	French **ATTENTION**
● Vermeiden Sie das Einatmen von Schweibrauch! ● Sorgen Sie für gute Be- und Entlüftung des Arbeitsplatzes!	● Strom vor Wartungsarbeiten abschalten! (Netzstrom völlig öffnen; Maschine anhalten!)	● Anlage nie ohne Schutzgehäuse oder Innenschutzverkleidung in Betrieb setzen!	German **WARNUNG**
● Mantenha seu rosto da fumaça. ● Use ventilação e exhaustão para remover fumo da zona respiratória.	● Não opere com as tampas removidas. ● Desligue a corrente antes de fazer serviço. ● Não toque as partes elétricas nuas.	● Mantenha-se afastado das partes moventes. ● Não opere com os paineis abertos ou guardas removidas.	Portuguese **ATENÇÃO**
● ヒュームから頭を離すようにして下さい。 ● 換気や排煙に十分留意して下さい。	● メンテナンス・サービスに取りかかる際には、まず電源スイッチを必ず切って下さい。	● パネルやカバーを取り外したままで機械操作をしないで下さい。	Japanese **注意事項**
●頭部遠離煙霧。 ●在呼吸區使用通風或排風器除煙。	●維修前切斷電源。	●儀表板打開或沒有安全罩時不準作業。	Chinese **警 告**
● 얼굴로부터 용접가스를 멀리하십시요. ● 호흡지역으로부터 용접가스를 제거하기 위해 가스제거기나 통풍기를 사용하십시요.	● 보수전에 전원을 차단하십시요.	● 판넬이 열린 상태로 작동치 마십시요.	Korean **위 험**
● ابعد رأسك بعيداً عن الدخان. ● استعمل التهوية أو جهاز ضغط الدخان للخارج لكي تبعد الدخان عن المنطقة التي تتنفس فيها.	● اقطع التيار الكهربائي قبل القيام بأية صيانة.	● لا تشغل هذا الجهاز اذا كانت الاغطية الحديدية الواقية ليست عليه.	Arabic **تحذير**

LEIA E COMPREENDA AS INSTRUÇÕES DO FABRICANTE PARA ESTE EQUIPAMENTO E AS PARTES DE USO, E SIGA AS PRÁTICAS DE SEGURANÇA DO EMPREGADOR.

使う機械や溶材のメーカーの指示書をよく読み、まず理解して下さい。そして貴社の安全規定に従って下さい。

請詳細閱讀並理解製造廠提供的説明以及應該使用的銀捍材料，並請遵守貴方的有関勞動保護規定。

이 제품에 동봉된 작업지침서를 숙지하시고 귀사의 작업자 안전수칙을 준수하시기 바랍니다.

اقرأ بتمعن وافهم تعليمات المصنع المنتج لهذه المعدات والمواد قبل استعمالها واتبع تعليمات الوقاية لصاحب العمل.

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