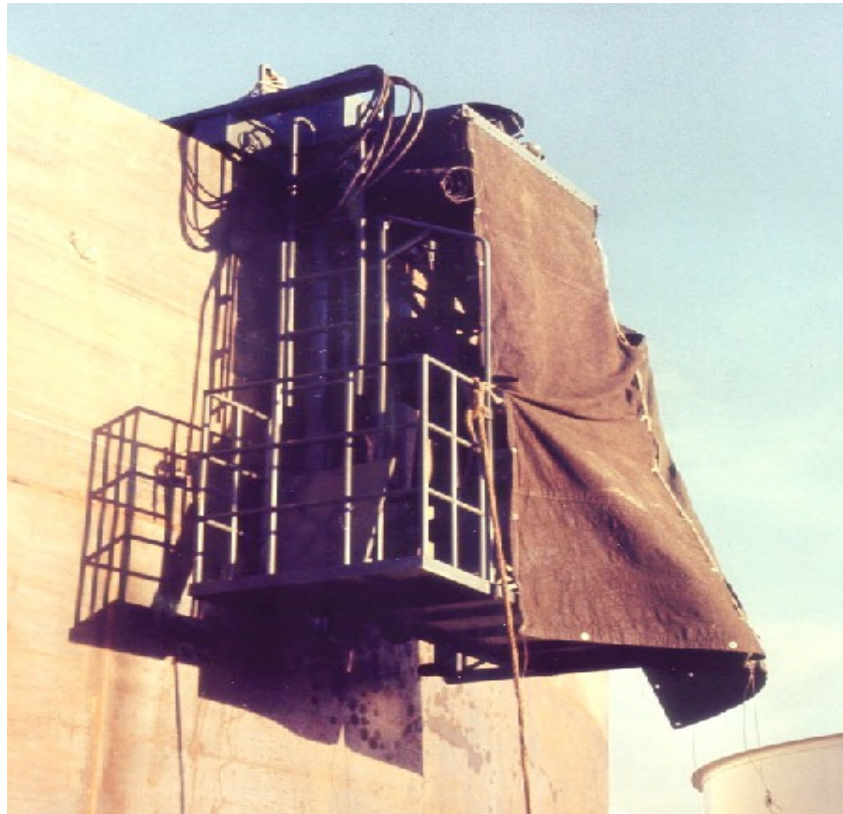




KOIKE ARONSON, INC.

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AUTOMATED GIRTH WELDER (I and II) WELDING POSITIONER



INSTRUCTION MANUAL MI1533A

Subject to Change without Notice

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SECTION 1

SAFETY PRECAUTIONS

USER RESPONSIBILITY – Seller makes no representations or warranties regarding the adequacy of the structure on which the AGW-I/AGW-II is to be mounted. It is Buyer's sole responsibility to determine whether the support structure is of sufficient strength and structural integrity to adequately hold the product and operating personnel. Buyer's failure to make such a determination may result in a failure of the system, property damage or serious personal injury.

This equipment will perform in conformity with the description thereof in this manual and accompanying labels and/or inserts when installed, operated, maintained and repaired in accordance with the instructions provided. This equipment must be checked periodically. Defective equipment should not be used. Parts that are broken, missing, plainly worn, distorted or contaminated should be replaced immediately. Should repair or replacement become necessary, KOIKE ARONSON recommends that a request for service be made to the KOIKE ARONSON Authorized Distributor from whom purchased or directly to the KOIKE ARONSON Service Department.

This equipment or any of its parts should not be altered without prior written approval of KOIKE ARONSON. The user of this equipment shall have sole responsibility for any malfunction, which results from improper use, faulty maintenance, damage, improper repair or alteration by anyone other than KOIKE ARONSON or a facility, designated by KOIKE ARONSON, INC.

NOTES, CAUTIONS & WARNINGS

Throughout this manual, notes, cautions, and warnings are used to describe situations that require additional information. The following formats are used for each:

Notes: A note offers additional information, such as an operating tip, that aids the user in operating the equipment.

Caution: A caution describes a situation that may cause damage to the machine and offers advice to avoid or rectify the situation.



WARNING



A warning describes a situation that presents a physical danger to the operator, and offers advice to avoid or rectify the situation. Each type of warning displays an applicable danger symbol, such as fire, explosion, electrical shock and so on.

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SYMBOL LIBRARY

SYMBOL

MEANING



GENERAL INFORMATION



ELECTRICAL SHOCK CAN KILL



POISON/TOXIC



FLAMMABLE/COMBUSTIBLE



EXPLOSION HAZARD



DO NOT WATCH THE ARC



OPEN GEARING



GROUND THIS EQUIPMENT



COMPRESSED GAS

SYMBOL	MEANING
	EYE PROTECTION REQUIRED
	USE AN APPROVED RESPIRATOR
	WEAR APPROVED EAR PROTECTION
	INSULATED GLOVES REQUIRED
	INSULATED FOOTWARE REQUIRED
	NO OPEN FLAME
	HOT SURFACE DO NOT TOUCH
	DO NOT REMOVE GUARDS
 Wear welding mask	WEAR PROPER EYE PROTECTION WHEN PLASMA CUTTING
 Wear protective clothing	WEAR PROTECTIVE CLOTHING

Before using this equipment and its options each person operating, maintaining or supervising the use of this equipment must read the following safety instructions.



WARNING



Protect yourself and others. Read and understand these instructions. FUMES AND GASES can be dangerous to your health. HEAT RAYS (INFRARED & ULTRAVIOLET) from flame, arc or hot metal can injure eyes. Read and understand the manufacturers' instructions and your employer's safety practices. Use enough ventilation/exhaust at the flame/arc, or both, to keep fumes and gases from your breathing zone, and the general area. Keep your head out of the fumes.

1.1 GENERAL SAFETY

Operation of this machine involves various moving and rotating parts that could prove to be dangerous. Follow the precautions in this General Safety Section, as well as those throughout this manual, for your personal safety and the safety of people in the area that may be affected. Failure to observe these safety practices may cause serious injury or death.

1. Install and operate this machine only in a well-ventilated area.



2. Connect and maintain electrical grounds to the equipment according to local codes and the National Electrical Code.



3. Shut OFF, LOCK OUT and TAG OUT power whenever leaving the machine unattended or before servicing.
4. Keep this equipment clean and in good operating condition.
5. Parts that are broken, worn, distorted or missing must be replaced immediately.



6. Always, keep hands and tools away from moving or rotating part of the machine.
7. The work piece and tooling used on this equipment must be securely fastened in place. The fastening requirements are determined by and obtained from the user's engineering department.



1.2 GENERAL SAFETY, ARC WELDING

Operation of this machine involves various moving and rotating parts that could prove to be dangerous. Follow the precautions in this General Safety Section, as well as those throughout this manual, for your personal safety and the safety of people in the area that may be affected.

8. Read and understand further detailed safety precautions throughout this manual.

Different arc welding processes, electrode alloys, and fluxes can produce different fumes, gases, and radiation levels. In addition to the information in this manual, be sure to consult flux and electrode manufacturers Material Safety Data Sheets (MSDSs) for specific technical data and precautionary measures concerning their material. Arc Welding is a high intensity source of visible light emission as well as ultraviolet and infrared radiation. It can cause severe eye damage, penetrate lightweight clothing, reflect from light-colored surfaces, and burn the skin and eyes. Skin burns resemble acute sunburn. Burns from gas-shielded arcs are more severe and painful.

Follow the precautions in this General Safety Section and read the welding equipment instruction manual for additional and more detailed safety precautions.

1. Electric current flowing through any conductor causes localized Electrical and Magnetic Fields (EMF). Welding current creates EMF fields around welding cables and welding power supplies.

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 that are not yet known.

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

- a. Route the electrode and work cables together. Secure them with tape when possible.
 - b. Never, coil the electrode lead around your body.
 - c. **Do Not** place your body between the electrode and work cables. If the electrode is on your right side, the work cable should also be on your right side.
 - d. Connect the work cable to the work piece as close as possible to the area being welded.
 - e. **Do Not** work next to the welding power source.
2. Connect and maintain electrical grounds to the equipment according to local codes and the National Electrical Code.
 3. After installation and regularly thereafter, check that all electrical connections are tight.



4. Shut OFF, LOCK OUT and TAG OUT power whenever leaving machine unattended or before servicing.



5. Inspect the primary power cord frequently for damage or cracking of the jacket cover. **Bare wiring can kill.** Do not use the system with a damaged power cord. If a power cord is damaged, replace it immediately.
6. Coil excess cords and place them out of the way to prevent damage and to eliminate a tripping hazard.
7. Machine guards should never be removed unless the power connections have been disconnected and locked out. Always replace machine guards before connecting the power.
8. Keep Equipment clean and in good operating condition.



9. Keep combustibles away from the work area or protect them from sparks.
10. Any parts, which are broken, worn, distorted or missing must be replaced immediately.

11. Always, keep hands and tools away from moving or rotating parts of the machine.
12. Always stand clear of the machine's travel area.
13. All work pieces and tooling to be used on this equipment must be securely fastened in place. The fastening requirements should be determined by and obtained from the user's engineering department.
14. The electrode and work (or ground) circuits are electrically "**ENERGIZED**" when the welder is ON. Do not touch these "**ENERGIZED**" parts with your bare skin or wet clothing. Wear gloves that are dry, and free from defects to insulate your hands.
15. Insulate yourself from the work piece and ground using dry insulation. Make certain the insulation is large enough to cover your full area of physical contact with the work piece and ground.
16. Maintain the electrode holders, work clamp, welding cable, and power supply in good, safe operating condition. Replace damaged or frayed leads.

Do Not touch other people with the holder or electrode.

17. **Do Not** use a welding current in excess of rated lead capacity. The lead will overheat.
18. Never, operate the welder unless the power supply unit covers are in place. Exposed power supply connections present a severe electrical hazard.
19. Before removing the cover of a welder or plasma power supply for maintenance use approved lockout procedures, disconnect the main power

at the source, shut off switch or unplug the power supply. To avoid exposure to severe electrical hazard, wait five (5) minutes after disconnecting the main power to allow capacitor discharge to occur. Test for zero (0) voltage.

20. Exposed "**ENERGIZED**" conductors or other bare metal in the welding circuit, or in ungrounded, electrically "**ENERGIZED**" equipment can fatally shock a person whose body becomes a conductor. DO NOT STAND, SIT, LIE, LEAN ON OR TOUCH a wet surface when welding, without suitable protection.



21. To protect against shock wear dry insulating gloves and body protection. Keep body and clothing dry. Never work in damp areas without adequate insulation against electrical shock. Stay on a dry insulating platform or a rubber mat when dampness or sweat cannot be avoided. Sweat, seawater, or moisture between the body and an electrically "**ENERGIZED**" part reduces the body's electrical resistance, and could permit dangerous and possibly fatal currents to flow through the body.



22. Wear long sleeve clothing (particularly for gas-shielded arc) gloves, hardhat and safety shoes. Do not wear cuff trousers. When necessary, use additional protective clothing such as leather/flame retardant jacket or sleeves, flameproof apron and flame resistant leggings. Avoid wearing outer garments containing untreated cotton. For bare skin protection, wear dark substantial clothing. Button collar to protect chest and neck and button pockets to prevent entry of sparks. All areas of the body must be covered by dark substantial clothing (preferably flame retardant) to protect against arc burn, sparks and flying hot metal.
23. Wear dark safety glasses or goggles with side shields and a welding helmet fitted with a double lens. Use a clear lens outside and a filtered number 12 or denser (AWS Standard) inside. Place the helmet over your face before striking an arc.
24. Replace cracked, pitted, splattered, or broken glasses, goggles or helmet. Prevent radiation from passing through causing burns. Dark safety glasses or goggles with side shields **MUST** be worn under the helmet to give some protection should the helmet not be lowered over the face before an arc is struck. Looking at an arc momentarily with unprotected eyes (particularly a high intensity gas-shielded arc) can cause a retinal burn that may leave a permanent dark area in the field of vision.
25. Warn others in the area not to directly look at the arc unless they are wearing dark glasses, goggles, or a helmet. Prepare the welding area in a manner that reduces the reflection and transmission of ultraviolet light. For production welding, a separate room or enclosed bay is best. In open areas, surround the operation with low-reflective, non-combustible screens or panels. Allow free air circulation, particularly at floor level. Before starting to weld, make sure screens, panels, or bay doors are closed.
26. Make fire extinguishers available in the welding area
27. Fire and explosion are caused by combustible materials being ignited by the welding arc, flying sparks, hot weld slag, electrical short circuits, and misuse of compressed gases. Sparks and molten metal can travel a considerable distance.
28. Remove combustible material from the immediate welding area to a distance of at least 35 feet (10 m). If combustibles cannot be moved, protect them with suitable and snug-fitting fire-resistant covers or shields. Remember that welding sparks and hot materials can easily go through small cracks and openings to adjacent areas.



31. A Fire Watcher must be standing by with suitable fire extinguishing equipment during and for some time after welding.

- a. If there are appreciable combustibles (including building construction) within 35 feet (10 m).
- b. If there are appreciable combustibles further than 35 feet (10 m) but can be ignited by sparks.
- c. If there are openings (concealed or visible) in the floor or walls within 35 feet (10 m) that may expose combustibles to sparks.
- d. If there are combustibles adjacent to walls, ceilings, roofs, or metal partitions that can be ignited by radiant or conducted heat.

After the work is done, check that the area is free of sparks, glowing embers, and flames.

32. Do Not electrically overload the arc welding equipment over its rated capacity. It may overheat cables and cause a fire.

33. Loose cable connections may overheat or flash and cause a fire.

34. Severe discomfort, illness or death may result from fumes, vapors, heat, or oxygen enrichment or depletion produced during welding operations. Prevent them with adequate ventilation. Never ventilate with oxygen.

35. Lead, cadmium, zinc, mercury, and beryllium-bearing and similar materials when welded may produce harmful concentrations of toxic fumes. Adequate local exhaust ventilation must be used, or each person in the area as well as the operator must wear an air-supplied respirator. For beryllium, both must be used.

SECTION 2 INTRODUCTION

2.1 GENERAL DESCRIPTION

The Automated Girth Welder is an automatic self-propelled welding machine used for the construction of field storage tanks having six to ten feet (1.8-3.05M) high plate courses. The unit is supported by the shell plates to be welded. The machine has its own welding head, control, flux support belt apparatus, and flux recovery unit so that 3-o'clock welds can be made to the shell. The standard welding process supplied is the Lincoln Electric Company's submerged arc system, using a Lincoln NA-3 solid-state control.

2.2 MACHINE FRAME

The machine is constructed of structural steel and tubular steel members. The tubular legs of the frame telescope and are manually adjustable by removing pins and raising or lowering the platform. Thus, the machine can weld shell plate ranging from six to ten feet (1.8-3.05M).

The master frame contains two serrated hardened steel flanged drive wheels, which are manually adjusted to ride tank diameters down to approximately fifteen feet (4.5M). The distance between wheel flanges is 1-3/4 inches (44.5mm). One of the wheels is driven by a positive-drive gear train (no secondary chain reduction). The gear train consists of a one-half horsepower electronically controlled motor that drives a double reduction gear unit. The machine speed range is four to one hundred and five inches per minute (.10-2.67M/min).

Small diameter wheels at the lower end of the tubular legs simplify loading and unloading the machine from the machine from the tank. Canvas curtains offer arc and operator protection on windy days or during inclement weather.

2.3 WELDING PROCESS AND EQUIPMENT

The standard welding equipment supplied is the Lincoln NA-3 solid state control and welding head fitted with nozzle, wire feed rolls, wire straightener, and 50Lb (22.7KG) wire reels for feeding up to 1/8 inch diameter wire (3.2mm diameter).

The welding nozzle is mounted on a manual cross slide system, which allows the operator complete control of wire placement and joint follow. Welding condition, wire and flux are those recommended by the Lincoln Electric Company for this process. The welding head assembly includes a submerged arc flux belt mechanism.

2.4 WELDING POWER SUPPLY

The welding power is supplied by a Lincoln DC-600Amp. power supply. Standard input power is 460/3/60 and line power requirement is 40KVA for the power supply. Other voltages and frequencies are available. The voltage is stepped down in the power source to 115VAC, which is required for welding controls.

Lincoln NA-3 welding equipment is mounted in the machine, and is under the control of the operator. A separate electronic control is used to drive the machine around the tank. The control is located on the master side of the welding machine and includes all necessary controls (such as the speed control potentiometer, direction switch, rapid travel pushbutton, as well as the emergency cut-off switch).

This unit also includes a 100lb (45KG) flux recovery vacuum unit for each side. The flux (which falls from the flux belt into a flux hopper mounted on the platform) is re-circulated to a primary tank mounted on the roof of the AGW by a vacuum unit mounted on the platform.

2.5 PLATFORM REMOVAL

If the platform needs to be removed, first disconnect the flux hose from the vacuum unit or remove the vacuum unit all together. Use a crane or other lifting device to hold the platform during removal operation. Remove the bottom leg pins and the bottom bolts in the square tubing of the frame and lower the platform until it is off.

2.6 CHANGING DIRECTIONS

If the machine is going to weld in the direction opposite of what it was set up for, move the flux pan and flux hose to the other end of the flux belt. Also, move the flux hose and the flux hopper to the welding nozzle to the other side so the flux will fall in front of the arc.

2.7 OPERATOR CONTROL DESCRIPTION

The master side control houses the electronic travel drive and associated control relays. A brief description of the controls the operator has access to and what they do follows.

1. Emergency Stop Pushbutton- Stops all electrical functions including welding and travel.
2. Flux Recovery Switch- Each flux recovery unit has its own On/Off switch located on the vacuum unit.

3. Speed Potentiometer- Adjusts the welding speed of the machine. Some machines include a direct reading tachometer while on others it is necessary for the user to prepare a speed calibration chart.

4. Forward/Reverse and Set/Rapid Switches- Placing the switch in the forward position causes the machine to move in the normal welding direction. The opposite is true for the reverse position. In either case, the carriage will move at a speed set on the speed potentiometer. Simultaneous operation of the Set/Rapid switch into the rapid position causes the machine to move at maximum speed. Regardless of the position of either of the switches, the machine will always move in the welding direction at the speed potentiometer setting when welding is first started. For automatic travel, the travel switch on the NA-3 must be in the travel position. To operate manually, the switch must be in the hand position.

5. Light switch on front of control panel to control panel to control outlets labled (Lights). Lights have cords and plugs that have run mounted lights to outlet box.

2.8 PREHEAT TORCH

A preheat torch is supplied. When preheating the plate to be welded, follow all oxy-fuel safety precautions. Ensure the tip and fuel gas used are compatible.

2.9 WELDING CONTROLS

Lincoln NA-3 welding equipment is normally supplied with the Automated Girth Welder. This equipment can be operated either in the 'constant voltage' mode, or in the 'variable voltage' mode. To change from one to another requires the following:

1. Correct 'CV-V V' switch position inside the Lincoln control.
2. Selection of the proper Lincoln control nameplate. Two are provided fastened to the control. When in the 'CV' mode, the nameplate should read NA-3N. When in the 'V V' mode, the nameplate should read NA-3S.

Compatible welding power supplies include the Lincoln DC600, CV-VV, and rectifier units suitable for inner shield, flux cored wire, and small diameter single wire welding.

The control is set for standing type starts. That is, when the weld start pushbutton is depressed, the wire slowly feeds to the work, the arc strikes and weld travel begins. Scratch type starts are achieved by placing the 'set/rapid' switch in the 'set' position and holding the travel switch in the 'forward' position, this will start travel in the welding direction. Depress the weld start switch and after the arc is established, release the travel switch.

2.10 WELDING PROCESS

Automated Girth Welder is normally equipped for single wire submerged arc process.

2.11 TROUBLESHOOTING

If any difficulty is experienced with the feeding or control of the welding wire, the problem may be associated with the Lincoln welding control or the power supply. Check

all fuses on the power supply, the Lincoln control, and the electrical control. The 'emergency stop' pushbutton must be energized, the Lincoln control power switch must be 'on' and the polarity switches on the power supplies must be in either the 'negative' or 'positive' polarity position.

If the above does not resolve the problem, the simplest and fastest way to diagnose is by substitution of components. The recommended spare parts list suggests a set of spare P.C. boards to minimize downtime and delays. Included in this manual is a chart to assist troubleshooting the Lincoln control by observation of the L.E.D.'s (light emitting diodes) on the P.C. boards during various operations of the control.

The Automated Girth Welder utilizes an electronic drive for machine travel around the tank. It is strongly recommended a drive panel board be included as a spare. Replacement in the field is relatively simple and will minimize machine down time.

The remaining electrical circuitry is straightforward and can usually be traced through by a local electrician using the electrical schematic diagram included in this manual.

Contact Koike Aronson Inc. if all the above measures fail to resolve the problem.

2.12 MODIFICATION FOR ODD SIZE PLATES

Adjustments can be made to the AGW for odd size plates. For example, a five foot six-inch tall plate, loosen the U-bolts at the end steel support and adjust up until it is in position for welding the five foot six-inch tall plate and tight the U-bolts.

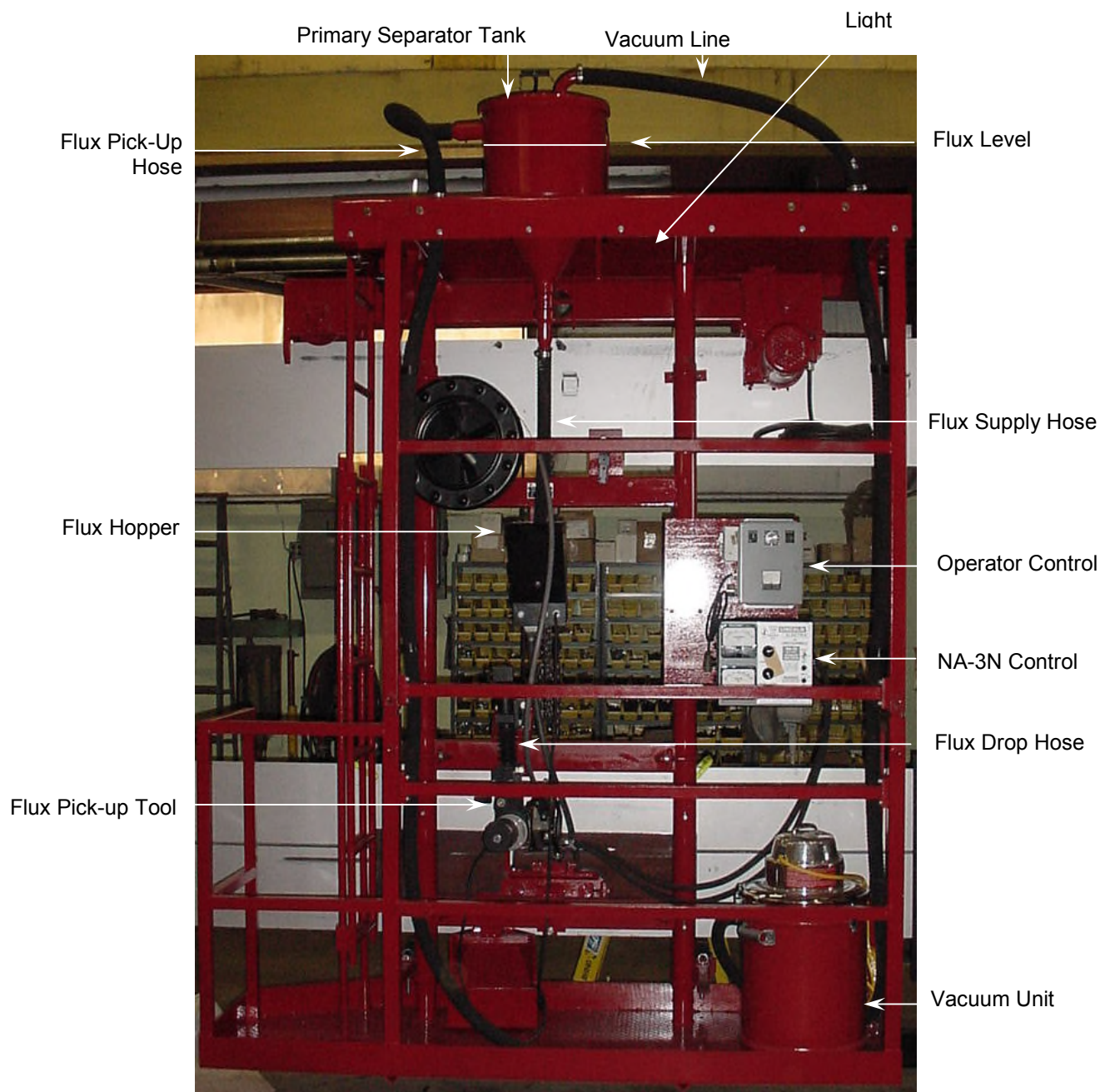


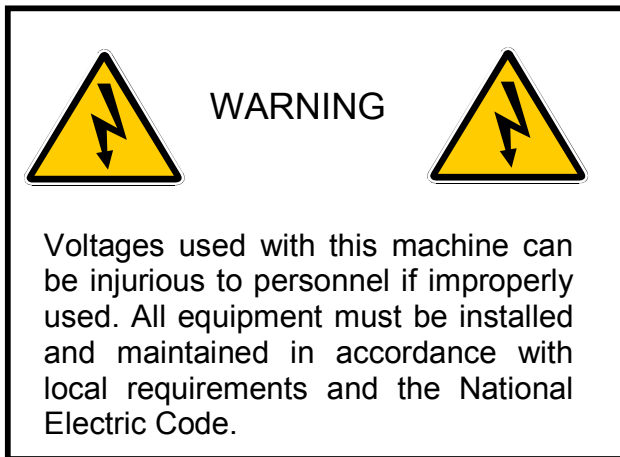
Figure 2.1 Physical locations

WARNING

Do not fill flux separator tank to full. Flux granules should not be vacuumed into the main vacuum unit. (If granules are in this unit, the separator tank is or was too full.) To replenish flux into the system periodically, add flux into the flux hopper during operation.

SECTION 3 INSTALLATION

3.1 INSTALLATION SAFETY PRECAUTION



Connect and maintain suitable electrical grounds to the supply ground wire. Do not connect ground to electrical conduit or to pipes carrying gases or flammable liquids. Use only the recommended size of electrical cable.

Use normal precautions when loading or operating heavy equipment. Follow the procedures in your company safety manual.

3.2 HANDLING AND STORAGE

When the shipment arrives at your location, accompany the driver in counting all the cartons indicated on the driver's waybill.

Inspect each piece for signs of mishandling or apparent damage. If discrepancies exist or any evidence of damage exists, note it **BOLDLY** across the face of the waybill **BEFORE YOU SIGN IT**. Sign the waybill only after this inspection. If you note discrepancies on the delivery ticket, **DO NOT** open the cartons.

Call the trucker's local office and ask that a claims investigator be sent as soon as possible to verify the status of the shipment. Also, call your Koike Aronson, Ransome representative. Try to arrange the meeting so that the claims investigator and the representative will be present when the damage/shortage is verified. The trucker will supply you with the necessary claims forms if required. Freight claims are the receivers' responsibility. Please follow these instructions carefully; Koike Aronson, Ransome and your distributor will support you fully in the unlikely event that a freight claim is necessary.

Handle the packing cartons carefully, right side up as marked. Store cartons in a dry location until ready to install.

3.3 UNPACKING AND CLEANING

The equipment has been packaged to prevent damage in transit. Unpack carefully to prevent accidental damage by uncrating tools. After uncrating, examine the equipment for signs of damage, particularly to control knobs, switches and electrical components. Report any damage to the freight carrier and Koike Aronson, Ransome immediately.

Remove preservation coating from all unpainted surfaces, as components are needed for installation, with WD-40®, LPS-1® or mineral spirits.

3.4 INSTALLATION

Proper installation and set-up is **CRITICAL** to ensure proper operation of the AGW and welding equipment.

3.4.1 STEPS FOR INSTALLATION

- a. Remove the machine from the crate. A lifting device capable of lifting 4000 pounds is required. Place a crane hook to the lifting eye and carefully upright the machine.
- b. The Automated Girth Welder is shipped with the “A” frame legs in their six-foot position and must be lengthened to the eight to ten foot positions depending on the size of the plate being welded.
- c. Set the separator tank on the roof and connect flux hoses. Figure 3.1. Set the vacuum unit on the floor and tighten the four bolts to hold it in place.
- d. Adjust the machine for the correct tank sizes; first hook a crane to the lifting eye on the roof. Remove the top leg pins on both sides of the welder, the bolts in the ladder, and the top bolts in the square tubing of the frame. Also, loosen the bolts in the top U-bolts. Raise the crane until the required boltholes line up then replace the pins and bolts that were intended to protect the flux belt mechanism during the hanging operation.

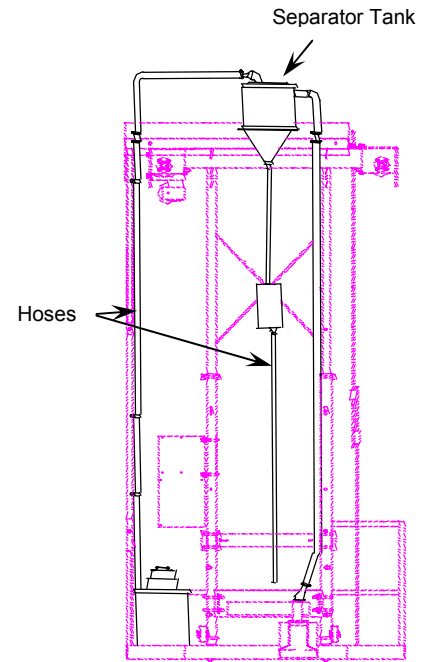
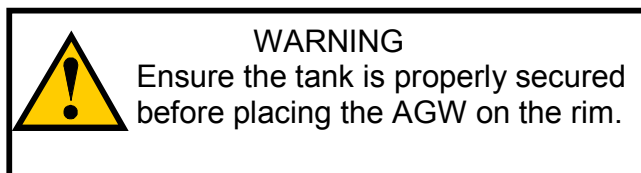


Figure 3.1 Separator tank and hoses

- e. Hang the machine on the tank using the crane.
- f. Retract the wheels back in and let the flux belt have intimate contact with the tank plate.
- g. Each side of the welder has its own canvas curtains. These curtains are permanently fastened to the weather hood at the top of the machine. Bolt the sides of the canvas curtains together through the canvas grommets and fold the excess canvas up when welding with six to eight foot wide plates.
- h. The flux hose lengths may need to be adjusted for the plate size to be welded. The system is set for eight-foot plate when shipped. Connect the flux hose line to the vacuum unit. Extra flux hose is supplied and must be added to the installed hose when setting the machine for ten-foot plate. When using six-foot plate, replace the flux hose from the bottom of the primary separator tank to the flux hopper with a shorter piece. See Figure 2.1.

- i. The weld nozzle assembly may be raised or lowered with respect to the weld seam by raising or lowering the channel on which they are mounted. The flux belt is inclined from the horizontal approximately fifteen degrees; similarly, the welding nozzle is also inclined fifteen degrees and has running adjustments to change the angle. It also has slides to allow three-axis positioning of the nozzle.
- j. The welding power source is intended to be located on the floor in the center of the storage tank. All of the cables are run from the power source to the cable hanger at the top of the machine. All cable connections are made at this point and the hanger clamp fastened in a way that the connections themselves do not feel the strain of the cable weight.
- k. Locate the skid assembly near the center of the tank. The skid assembly contains main power distribution disconnect, distribution transformer, and the welder power supply.
- m. Adjust the angle of the travel wheels to conform to the diameter of the storage tank. The machine is now ready to operate.

WARNING

Ensure proper voltage and fusing before applying main power. Ensure the transformer is correctly wired for the applied voltage. Reference drawing 0874-0000-00 page 1.

- l. Connect primary power of the proper voltage and frequency to the power source. If rectifier type DC power supplies are used, the power phasing is unimportant. If motor generators are used, phase the input power so the motor generators rotate in the proper direction as indicated by the 'rotation direction' arrow on the case.

SECTION 4 MAINTENANCE

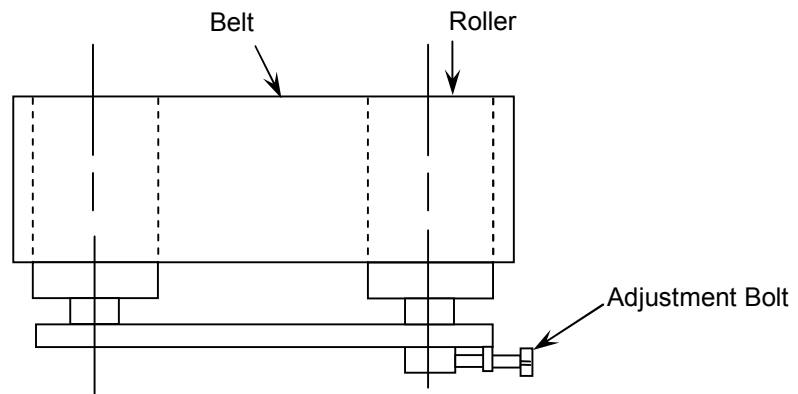


Figure 4.1

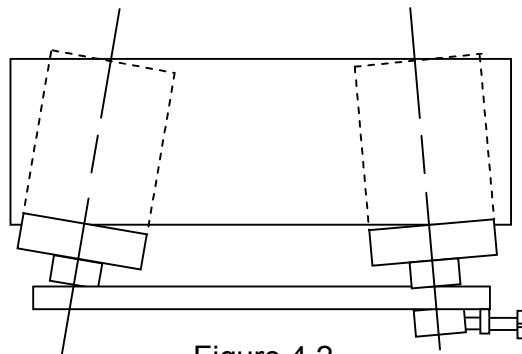
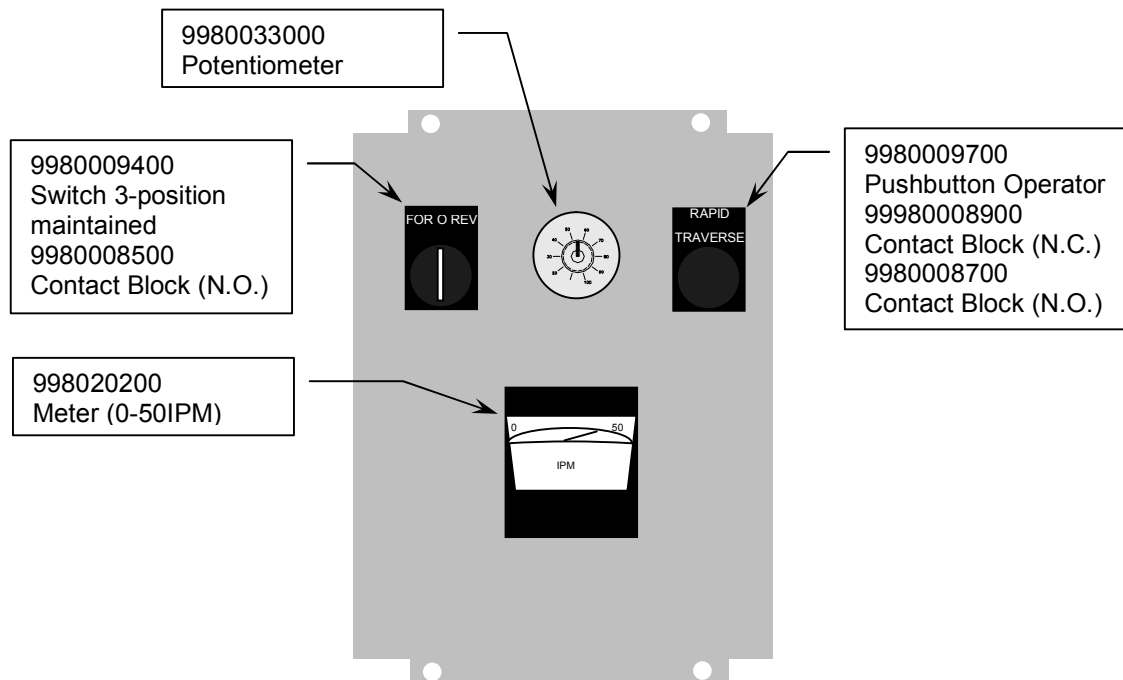


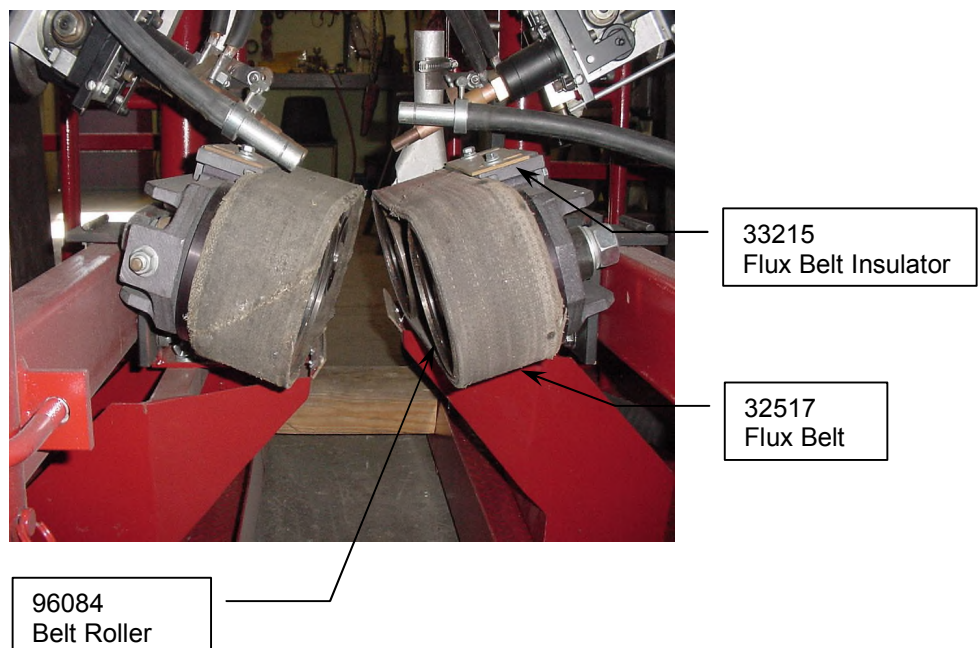
Figure 4.2

Figure 1 shows a properly adjusted belt. The belt is snug and both roll centerlines are parallel.

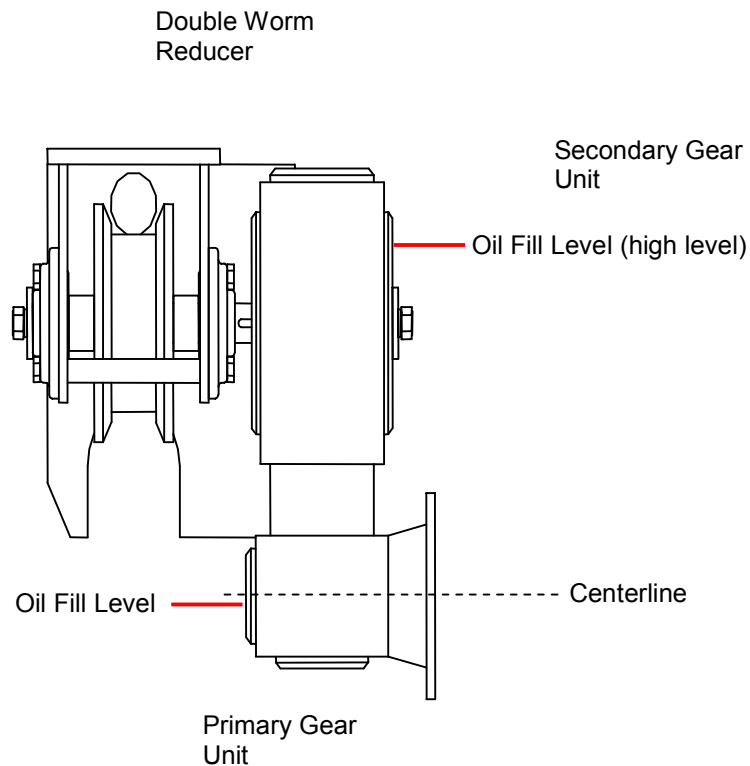
Figure 2 shows an improperly adjusted belt. The belt tension is too tight causing the rollers to skew bending both rollers and causing the belt to roll off.



Operator Control



4.1 Lubrication instructions:



WARNING

Do not use lubes than contain sulfur and or chlorine that are corrosive to bronze gears. Some extreme pressure lubes contain materials that are toxic. Be sure to read all warnings and MSDS reports.

- b. CAUTION: Each gear unit must be filled separately to the proper level. On double reduction units, generally the secondary gear unit is filled to the high oil level.

Drain and re-fill to the proper level every 1000 hours. Be sure to use only AGMA rated worm lubes.

Typical Replacement type oil: Mobil SHC 634 ambient operating temperature 0° to 135°F with an AGMA rating of 7EP. When other operating temperatures are encountered, contact Koike Aronson Inc. for proper lube specifications.

- b. Belt roller bearings are permanently sealed and no lubrication is required.

RECOMMENDED SPARE PARTS LIST				
PART NUMBER	DESCRIPTION	Where Used on Machine	Quantity used per machine	Recommended spares per machine
3270323	Ammeter	NA-3	2	1
3270286	Control Board	NA-3	2	1
3270287	Logic Board	NA-3	2	1
3930009	Speed Potentiometer	NA-3	1	1
3270332	Relay	NA-3	2	1
9983012700	Variable DC Drive	AGW Electrical	1	1
9980033000	5K 1-Turn Potentiometer	AGW Electrical	1	1
9981008800	Fuse Slo-Blo 12Amp	AGW Electrical	2	2
9948853100	Relay	AGW Electrical	1	1
9980020200	IPM Meter	AGW Electrical	1	1
9938725125	FNQ 12Amp Fuse	AGW Electrical	1	1
9938725127	FNQ 20Amp Fuse	AGW Electrical	1	1
2330100	Flux Belt Assy. Bearing	AGW Mechanical	8	2
2390226	Travel Wheel Bearing	AGW Mechanical	4	2
76084	Belt Roller	AGW Mechanical	1	1
32517	Flux Belt	AGW Mechanical	2	6
33215	Flux Belt Insulator	AGW Mechanical	2	2
32700821	Contact Nozzle Assy. K-231-3/32"	Single Wire Welding Only	2	1
3270047	Nozzle Extension (1-1/2")	Single Wire Welding Only	2	2
32701311	Contact Tip S-10125-3/32"	Single Wire Welding Only	2	12
3270706	Dust Filter	Flux Recovery	1	2
3270713	Motor	Flux Recovery	1	1
3270332	Pilot Relay	DC600	1	1
3270359	Reed Switch	DC600	1	1

Table 4.1 Spare Parts Listing

APPENDIX A

AGW II

GENERAL DESCRIPTION

The Automated Girth Welder II consists of a master-slave configuration. The master AGW is configured as an AGW I with drive controls and a welding head. The slave is configured as an AGW I without the drive controls. The slave is pivotally fastened to the top of the master frame and is used when two side welding. A ladder is provided as a means for operator movement from one side of the machine to the other and for access to the primary separator tank.

The AGW II requires two welder power supplies. Each unit has a flux recovery unit and controls (ON/OFF).

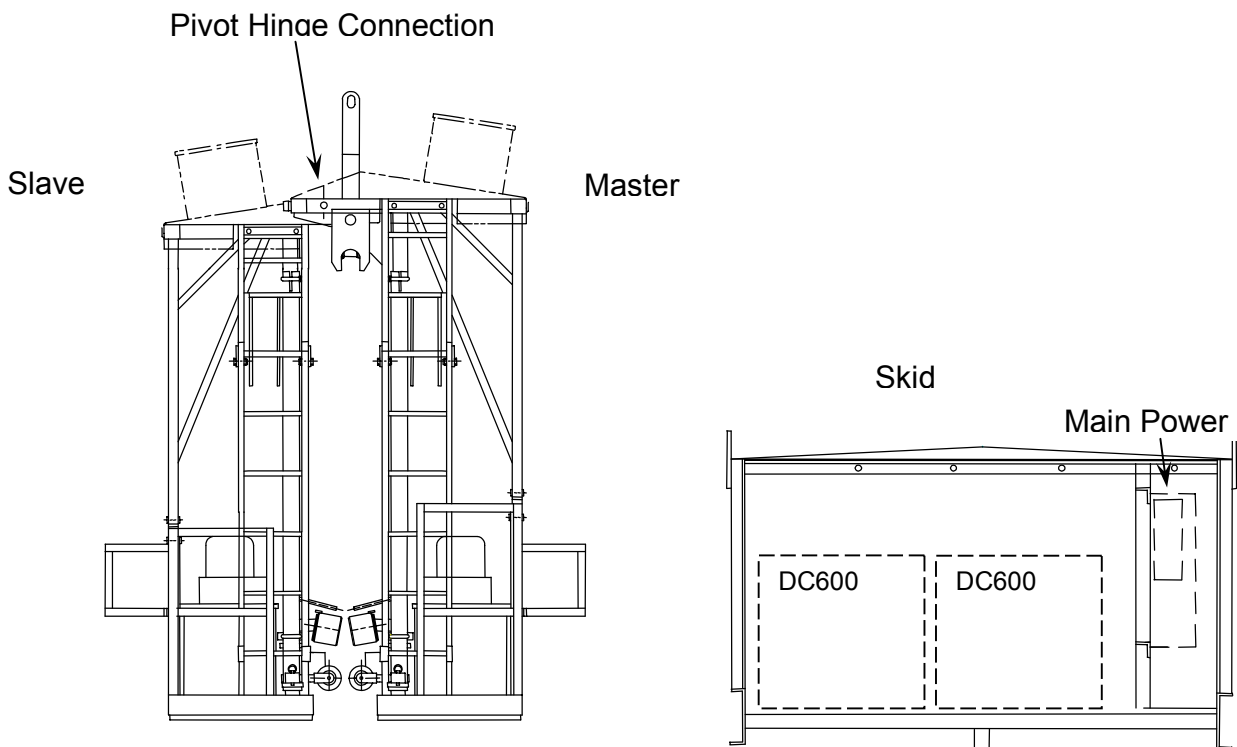
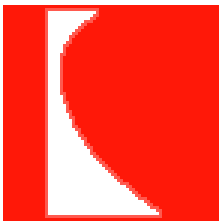


Figure A1 Typical Setup for AGWII



ATM MI1533A

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