WELDKING®

CC DC 1 PHASE 115V 230V

COOLARC 200

STICK (SMAW)

TIG (GTAW)

Owner's Manual

READ INSTRUCTIONS!

- ✓ Consult the Owner's Manual for welding safety precautions.
- ✓ Use only genuine replacement parts
- ✓ While the information contained in this Manual represents the Manufacturer's best judgment, the Manufacturer assumes no liability for its use.

Owner's Record

Model Name: _____

Date of purchased: _____

Serial Number: _____

Where Purchase: _____

_____

_____

_____

3 YEAR WARRANTY

WELDKING®

Register your product

Active your warranty

Click Here ►

- ✓ Proof of ownership
- ✓ Recall notifications
- ✓ Track repair history
- ✓ Efficient service

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Table of Contents

SECTION 1 SAFETY PRECAUTIONS

SECTION 1 CONSIGNES DE SÉCURITÉ

1-1. Symbol Usage Symboles utilisés

Means Warning! Watch Out! There are possible hazards with this procedure! The possible hazards are shown in the adjoining symbols.

Symbole graphique d'avertissement ! Attention ! Cette procedure comporte des risques possibles ! Les dangers éventuels sont représentés par les symboles graphiques joints.

▲ **Marks a special safety message.**
Indique un message de sécurité particulier

Means "Note"; not safety related.
Signifie NOTE ; n'est pas relatif à la sécurité.

This group of symbols means Warning! Watch Out possible ELECTRIC SHOCK, MOVING PARTS, and HOT PARTS hazards. Consult symbols and related instructions below for necessary actions to avoid the hazards

Ce groupe de symboles signifie Avertissement! Attention! Risques d'ÉLECTROCUTION, ORGANES MOBILES et PARTIES CHAUDES. Consulter les symboles et les instructions afferents ci-dessous concernant les mesures à prendre pour supprimer les dangers.

1-2. Arc welding Hazards Dangers relatifs au soudage à l'arc

- **The symbols shown below are used throughout this manual to call attention to and identify possible hazards. When you see the symbol, watch out, and follow the related instructions to avoid the hazard.**
- **Only qualified persons should service, test, maintain, and re- pair this unit.**
- **During servicing, keep everybody, especially children, away**
- **Les symboles représentés ci-dessous sont utilisés dans ce manuelpour attirer l'attention et identifier les dangers possibles. Enprésence de l'un de ces symboles, prendre garde et suivre lesinstructions afférentes pour éviter tout risque. Les instructions enmatière de sécurité indiquées ci-dessous ne constituent qu'un sommaire des instructions de sécurité plus complètes fournies dans les normes de sécurité énumérées dans la Section 2-5. Lire et observer toutes les normes de sécurité.**
- **Seul un personnel qualifié est autorisé à installer, faire fonctionner, entretenir et réparer cet appareil.**
- **Pendant le fonctionnement, maintenir à distance toutes les personnes, notamment les enfants de l'appareil.**

ELECTRIC SHOCK can kill.
UNE DÉCHARGE ÉLECTRIQUE entraîner la mort.

- Do not touch live electrical parts.
- Wear dry, hole-free insulating gloves and body protection.
- Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work or ground.
- Do not use AC output in damp areas, if movement is confined, or if there is a danger of falling.
- Use AC output ONLY if required for the welding process.
- If AC output is required, use remote output control if present on unit.
- Additional safety precautions are required when any of the following electrically hazardous conditions are present: 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; or when there is a high risk of unavoidable or accidental contact with the workpiece or ground. For these conditions, use the following equipment in order presented: 1) a semiautomatic DC constant voltage (wire) welder, 2) a DC manual (stick) welder, or 3) an AC welder with reduced open-circuit voltage. In most situations, use of a DC, constant voltage wire welder is recommended. And, do not work alone!
- Disconnect input power or stop engine before installing or servicing this equipment. Lockout/tagout input power according to OSHA 29 CFR 1910.147 (see Safety Standards).
- Properly install and ground this equipment according to its Owner's Manual and national, state, and local codes.
- Always verify the supply ground − check and be sure that input power cord ground wire is properly connected to ground terminal in disconnect box or that cord plug is connected to a properly grounded receptacle outlet.
- When making input connections, attach proper grounding conductor first − double-check connections.
- Frequently inspect input power cord for damage or bare wiring − replace cord immediately if damaged − bare wiring can kill.
- Turn off all equipment when not in use.
- Do not use worn, damaged, undersized, or poorly spliced cables.
- Do not drape cables over your body.
- If earth grounding of the workpiece is required, ground it directly with a separate cable.
- Do not touch electrode if you are in contact with the work, ground, or another electrode from a different machine.
- Do not touch electrode holders connected to two welding machines at the same time since double

open-circuit voltage will be present.

- Use only well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual.
- Wear a safety harness if working above floor level.
- Keep all panels and covers securely in place.
- Clamp work cable with good metal-to-metal contact to workpiece or worktable as near the weld as practical.
- Insulate work clamp when not connected to workpiece to prevent contact with any metal object.
- Do not connect more than one electrode or work cable to any single weld output terminal.

SIGNIFICANT DC VOLTAGE exists after removal of input power on inverters.

Il reste une TENSION DC NON NÉGLIGEABLE dans les sources de soudage onduleur quand on a coupe l'alimentation.

- Turn Off inverter, disconnect input power, and discharge input capacitors according to instructions in Maintenance Section before touching any parts.

- Ne pas toucher aux pièces électriques sous tension.
- Porter des gants isolants et des vêtements de protection secs et sans trous.
- S'isoler de la pièce à couper et du sol en utilisant des housses ou des tapis assez grands afin d'éviter tout contact physique avec la pièce à couper ou le sol.
- Ne pas se servir de source électrique à courant électrique dans les zones humides, dans les endroits confinés ou là où on risque de tomber.
- Se servir d'une source électrique à courant électrique UNIQUEMENT si le procédé de soudage le demande.
- Si l'utilisation d'une source électrique à courant électrique s'avère nécessaire, se servir de la fonction de télécommande si l'appareil en est équipé.
- D'autres consignes de sécurité sont nécessaires dans les conditions suivantes : risques électriques dans un environnement humide ou si l'on porte des vêtements mouillés ; sur des structures métalliques telles que sols, grilles ou échafaudages ; en position coincée comme assise, à genoux ou couchée ; ou s'il y a un risque élevé de contact inévitable ou accidentel avec la pièce à souder ou le sol. Dans ces conditions, utiliser les équipements suivants, dans l'ordre indiqué : 1) un poste à souder DC à tension constante (à fil), 2) un poste à souder DC manuel (électrode) ou 3) un poste à souder AC à tension à vide réduite. Dans la plupart des situations, l'utilisation d'un poste à souder DC à fil à tension constante est recommandée. En outre, ne pas travailler seul !
- Couper l'alimentation ou arrêter le moteur avant de procéder à l'installation, à la réparation ou à l'entretien de l'appareil. Déverrouiller l'alimentation selon la norme OSHA 29 CFR 1910.147 (voir normes de sécurité).
- Installer le poste correctement et le mettre à la terre convenablement selon les consignes du manuel de l'opérateur et les normes nationales, provinciales et locales.
- Toujours vérifier la terre du cordon d'alimentation. Vérifier et s'assurer que le fil de terre du cordon d'alimentation est bien raccordé à la borne de terre du sectionneur ou que la fiche du cordon est raccordée à une prise correctement mise à la terre.
- En effectuant les raccordements d'entrée, fixer d'abord le conducteur de mise à la terre approprié et contre-vérifier les connexions.
- Vérifier fréquemment le cordon d'alimentation afin de s'assurer qu'il n'est pas altéré ou à nu, le remplacer immédiatement s'il l'est. Un fil à nu peut entraîner la mort.
- L'équipement doit être hors tension lorsqu'il n'est pas utilisé.
- Ne pas utiliser des câbles usés, endommagés, de grosseur insuffisante ou mal épissés.
- Ne pas enrouler les câbles autour du corps.
- Si la pièce soudée doit être mise à la terre, le faire directement avec un câble distinct.
- Ne pas toucher l'électrode quand on est en contact avec la pièce, la terre ou une électrode provenant d'une autre machine.
- Ne pas toucher des porte électrodes connectés à deux machines en même temps à cause de la présence d'une tension à vide doublée.
- N'utiliser qu'un matériel en bon état. Réparer ou remplacer sur-lechamp les pièces endommagées. Entretenir l'appareil conformément à ce manuel.
- Porter un harnais de sécurité si l'on doit travailler au-dessus du sol.
- S'assurer que tous les panneaux et couvercles sont correctement en place.
- Fixer le câble de retour de façon à obtenir un bon contact métal-métal avec la pièce à souder ou la table de travail, le plus près possible de la soudure.
- Isoler la pince de masse quand pas mis à la pièce pour éviter le contact avec tout objet métallique.
- Ne pas raccorder plus d'une électrode ou plus d'un câble de masse à une même borne de sortie de soudage.
- Arrêter les convertisseurs, débrancher le courant électrique et décharger les condensateurs d'alimentation selon les instructions indiquées dans la partie Entretien avant de toucher les pièces.
-

STATIC (ESD) can damage PC boards.

LES CHARGES ÉLECTROSTATIQUES peuvent endommager les circuits imprimés.

- Put on grounded wrist strap BEFORE handling boards or parts.
- Use proper static-proof bags and boxes to store, move, or ship PC boards.
- Établir la connexion avec la arrette de terre avant

de manipuler des cartes ou des pièces.

- Utiliser des pochettes et des boîtes antistatiques pour stocker, déplacer ou expédier des cartes PC.

FIRE OR EXPLOSION hazard.

Risque D'INCENDIE OU D'EXPLOSION.

- Do not place unit on, over, or near combustible surfaces.
- Do not service unit near flammables
- Do not overload building wiring − be sure power supply system is properly sized, rated, and protected to handle this unit.

- Ne pas placer l'appareil sur, au-dessus ou à proximité de surfaces inflammables.
- Ne pas installer l'appareil à proximité de produits inflammables.
- Ne pas surcharger l'installation électrique − s'assurer que l'alimentation est correctement dimensionnée et protégée avant de mettre l'appareil en service.

FLYING METAL can injure eyes.

DES PARTICULES VOLANTES peuvent blesser les yeux.

- Wear safety glasses with side shields or face shield during servicing.
- Be careful not to short metal tools, parts, or wires together during testing and servicing.

- Le soudage, l'écaillement, le passage de la pièce à la brosse en fil de fer, et le meulage génèrent des étincelles et des particules métalliques volantes. Pendant la période de refroidissement des soudures, elles risquent de projeter du laitier.
- Porter des lunettes de sécurité avec écrans latéraux ou un écran facial.

HOT PARTS can cause severe burns.

DES PIÈCES CHAUDES peuvent provoquer des brûlures graves.

- Do not touches hot parts bare handed.
- Allow cooling period before working on welding gun or torch

- Ne pas toucher des parties chaudes à mains nues.
- Prévoir une période de refroidissement avant d'utiliser le pistolet ou la torche.

MAGNETIC FIELDS can affect pacemakers.

LES CHAMPS MAGNÉTIQUES peuvent

affecter les stimulateurs cardiaques.

- Pacemaker wearers keep away.
- Wearers should consult their doctor before going near arc welding, gouging, or spot welding operations.

- Porteurs de stimulateur cardiaque, rester à distance.
- Les porteurs d'un stimulateur cardiaque doivent d'abord consulter leur médecin avant de s'approcher des opérations de soudage à l'arc, de gougeage ou de soudage par points.

CYLINDERS can explode if damaged.

LES BOUTEILLES peuvent exploser si elles sont endommagées.

Shielding gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. Since gas cylinders are normally part of the welding process, be sure to treat them carefully.

- Protect compressed gas cylinders from excessive heat, mechanical shocks, physical damage, slag, open flames, sparks, and arcs.
- Install cylinders in an upright position by securing to a stationary support or cylinder rack to prevent falling or tipping.
- Keep cylinders away from any welding or other electrical circuits.
- Never drape a welding torch over a gas cylinder.
- Never allow a welding electrode to touch any cylinder.
- Never weld on a pressurized cylinder − explosion will result.
- Use only correct shielding gas cylinders, regulators, hoses, and fittings designed for the specific application; maintain them and associated parts in good condition.
- Turn face away from valve outlet when opening cylinder valve.
- Keep protective cap in place over valve except when cylinder is in use or connected for use.
- Use the right equipment, correct procedures, and sufficient number of persons to lift and move cylinders.
- Read and follow instructions on compressed gas cylinders, associated equipment, and Compressed Gas Association (CGA) publication P-1 listed in Safety Standards.

Des bouteilles de gaz protecteur contiennent du gaz sous haute pression. Si une bouteille est endommagée, elle peut exploser. Du fait que les bouteilles de gaz font normalement artie du procédé de soudage, les manipuler avec précaution.

- Protéger les bouteilles de gaz comprimé d'une chaleur excessive, des chocs mécaniques, des dommages physiques, du laitier, des flammes ouvertes, des étincelles et des arcs.
- Placer les bouteilles debout en les fixant dans un support stationnaire ou dans un porte-bouteilles pour les empêcher de tomber ou de se renverser.
- Tenir les bouteilles éloignées des circuits de soudage ou autres circuits électriques.
- Ne jamais placer une torche de soudage sur une

bouteille à gaz.

- Une électrode de soudage ne doit jamais entrer en contact avec une bouteille.
- Ne jamais souder une bouteille pressurisée − risque d'explosion.
- Utiliser seulement des bouteilles de gaz protecteur, régulateurs, tuyaux et raccords convenables pour cette application spécifique ; les maintenir ainsi que les éléments associés en bon état.
- Détourner votre visage du détendeur-régulateur lorsque vous ouvrez la soupape de la bouteille.
- Le couvercle du détendeur doit toujours être en place, sauf lorsque la bouteille est utilisée ou qu'elle est reliée pour usage ultérieur.
- Utiliser les équipements corrects, les bonnes procédures et suffisamment de personnes pour soulever et déplacer les bouteilles.
- Lire et suivre les instructions sur les bouteilles de gaz comprimé, l'équipement connexe et le dépliant P-1 de la CGA (Compressed Gas Association) mentionné dans les principales normes de sécurité.

FALLING UNIT can cause injury.
LA CHUTE DE L'APPAREIL peut blesser.

- Use lifting eye to lift unit only, NOT running gear, gas cylinders, or any other accessories.
- Use equipment of adequate capacity to lift and support unit.
- If using lift forks to move unit, be sure forks are long enough to extend beyond opposite side of unit

- Utiliser l'anneau de levage uniquement pour soulever l'appareil, NON PAS les chariots, les bouteilles de gaz ou tout autre accessoire.
- Utiliser un équipement de levage de capacité suffisante pour lever l'appareil.
- En utilisant des fourches de levage pour déplacer l'unité, s'assurer que les fourches sont suffisamment longues pour dépasser du côté opposé de l'appareil.

MOVING PARTS can cause injury.
DES ORGANES MOBILES peuvent provoquer des blessures.

- Keep away from moving parts such as fans.
- Keep all doors, panels, covers, and guards closed and securely in place.
- Have only qualified persons remove doors, panels, covers, or guards for maintenance as necessary.
- Reinstall doors, panels, covers, or guards when maintenance is finished and before reconnecting input power.

- S'abstenir de toucher des organes mobiles tells que des ventilateurs.
- Maintenir fermés et verrouillés les portes, panneaux, recouvrements et dispositifs de protection.
- Seules des personnes qualifiées sont autorisées à enlever les portes, panneaux, recouvrements ou dispositifs de protection pour l'entretien.
- Remettre les portes, panneaux, recouvrements ou dispositifs de protection quand l'entretien est terminé et avant de rebrancher l'alimentation électrique.

MOVING PARTS can cause injury.
DES ORGANES MOBILES peuvent provoquer des blessures.

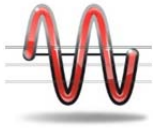
- Keep away from moving parts
- Keep away from pinch points such as drive rolls

- Ne pas s'approcher des organes mobiles.
- Ne pas s'approcher des points de coincement tels que des rouleaux de commande.

OVERUSE can cause OVERHEATING. L'EMPLOI EXCESSIF peut SURCHAUFFER L'ÉQUIPEMENT.

- Allow cooling period; follow rated duty cycle.
- Reduce current or reduce duty cycle before starting to weld again.
- Do not block or filter airflow to unit

- Prévoir une période de refroidissement ; respecter le cycle opératoire nominal.
- Réduire le courant ou le facteur de marche avant de poursuivre le soudage.
- Ne pas obstruer les passages d'air du poste.



H.F. RADIATION can cause interference.
LE SOUDAGE À L'ARC risque de provoquer des interférences.

- High-frequency (H.F.) can interfere with radio navigation, safety services, computers, and communications equipment.
- Have only qualified persons familiar with electronic equipment perform this installation.
- The user is responsible for having a qualified electrician promptly correct any interference problem resulting from the installation.
- If notified by the FCC about interference, stop using the equipment at once.
- Have the installation regularly checked and maintained.
- Keep high-frequency source doors and panels tightly shut, keep spark gaps at correct setting, and use grounding and shielding to minimize the possibility of interference.

- Le rayonnement haute fréquence (HF) peut provoquer des interférences avec les équipements de radio-navigation et de communication, les services de sécurité et les ordinateurs.
- Demander seulement à des personnes qualifiées familiarisées avec des équipements électroniques de faire fonctionner l'installation.
- L'utilisateur est tenu de faire corriger rapidement par un electrician qualifié les interférences résultant de l'installation.
- Si le FCC signale des interférences, arrêter immédiatement l'appareil.
- Effectuer régulièrement le contrôle et l'entretien de l'installation.
- Maintenir soigneusement fermés les portes et les panneaux des sources de haute fréquence, maintenir les éclateurs à une distance correcte et utiliser une terre et un blindage pour réduire les interférences éventuelles.

READ INSTRUCTIONS. LIRE LES INSTRUCTIONS.

- Consult the Owner's Manual for welding safety precautions.
- Use only genuine replacement parts

- Lire le manuel d'utilisation avant d'utiliser ou d'intervenir sur l'appareil.
- Utiliser uniquement des pièces de rechange.

1-3. Safety Standards Normes de sécurité

Safety in Welding, Cutting, and Allied Processes, ANSI Standard Z49.1, from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

Code for Safety in Welding and Cutting, CSA Standard W117.2, from Canadian Standards Association, Standards Sales, 178 Rexdale Boulevard, Rexdale, Ontario, Canada M9W 1R3 (phone: 800−463−6727 or in Toronto 416−747−4044, website: www.csa−international.org).

Safety in Welding, Cutting, and Allied Processes, ANSI Standard Z49.1, de Global Engineering Documents (téléphone : 1-877-413-5184, site Internet : www.global.ihs.com).

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1-4. EMF Information EMF Information

Considerations About Welding And The Effects Of Low Frequency Electric And Magnetic Fields

Welding current, as it flows through welding cables, will cause electro- magnetic fields. There has been and still is some concern about such fields. However, after examining more than 500 studies spanning 17 years of research, a special blue ribbon committee of the National Research Council concluded that: “The body of evidence, in the committee’s judgment, has not demonstrated that exposure to power- frequency electric and magnetic fields is a human-health hazard.” However, studies are still going forth and evidence continues to be examined. Until the final conclusions of the research are reached, you may wish to minimize your exposure to electromagnetic fields when welding or cutting.

To reduce magnetic fields in the workplace, use the following procedures:

1. Keep cables close together by twisting or taping them.

2. Arrange cables to one side and away from the operator.

3. Do not coil or drape cables around your body.

4. Keep welding power source and cables as far away from operator as practical.

5. Connect work clamp to work piece as close to the weld as possible.

About Pacemakers:

Pacemaker wearers consult your doctor first. If cleared by your doctor, then following the above procedures is recommended

Considérations sur le soudage et les effets de basse fréquence et des champs magnétiques et électriques.

Le courant de soudage, pendant son passage dans les câbles de soudage, causera des champs électromagnétiques. Il y a eu et il y a encore un certain souci à propos de tels champs. Cependant, après avoir examine plus de 500 études qui ont été faites pendant une période de recherché de 17 ans, un comité spécial ruban bleu du National Research Council a conclu : « L’accumulation de preuves, suivant le jugement du comité, n’a pas démontré que l’exposition aux champs magnétiques et champs électriques à haute fréquence représente un risque à la santé humaine ». Toutefois, des études sont toujours en cours et les preuves continuent à être examinées. En attendant que les conclusions finales de la recherché soient établies, il vous serait souhaitable de réduire votre exposition aux champs électromagnétiques pendant le soudage ou le coupage.

Pour réduire les champs magnétiques sur le poste de travail, appliquer les procédures suivantes :

1. Maintenir les câbles ensemble en les tordant ou en les enveloppant.

2. Disposer les câbles d’un côté et à distance de l’opérateur.

3. Ne pas courber pas et ne pas entourer pas les câbles autour de votre corps.

4. Garder le poste de soudage et les câbles le plus loin possible de vous.

5. Connecter la pince sur la pièce aussi près que possible de la soudure.

En ce qui concer ne les sti mulateurs cardiaques

Les porteurs de stimulateur cardiaque doivent consulter leur médecin avant de souder ou d’approcher des opérations de soudage. Si le médecin approuve, il est recommandé de suivre les procédures précédentes

SECTION 2 PACKING LIST

CoolArc200 package (Part No: 07003700)		
Description	**Part no**	**Quantity**
CoolArc200 Power source come with 10 ft. (3 M) Power cord and NEMA 6-50P 230V AC Plug		1
300 Amp electrode holder with 13 ft (4 M) #4 lead and 50mm male Dinse plug	07000463	1
300 Amp ground clamp with 10 ft (3 M) lead #4 lead and 50mm male Dinse plug	07000462	1
Adapter Cable 5FT, NEMA 6-50R 230V-5-20P 120V	07001825	1
Owner' manual	07000418	1

Table 2.1

SECTION 3 BASIC INFORMATION

3-1. Welding power source specifications

CoolArc200 package (Part No: 07003700)				
Power supply	AC 115V,60Hz,1 phase		AC (208)V/230V,60Hz, 1 phase	
Welding Process	**TIG**	**STICK**	**TIG**	**STICK**
Input Amps @ Maximum output(A)	13	20	13	20
Rated input (KW)	2.7	3.6	4.4	7
Generator Requirements(KVA)	5		7.5	
OCV (V)	71			
Amperage range(A)	10A,10.4V - 110A, 14.4V		10A, 10.4V - 200A, 18V	
Duty cycle (%) @ 40℃	40%@110A,14.4V 60%@90A, 16.3V 100%@70A,12.8V	40%@110A,24.4V 60%@90A,23.6V 100%@70A,22.8V	40@200A, 18V 60%@165A,16.6V 100%@130A,15.2V	40%@200A,28V 60%@165A,26.6V 100%@130A,25.2V
Power factor	0.99			
Protection class	IP23			
Insulation class	H			
Operating temperature (°C)	-20 to +40 (-4°F to 104°F)			
Storage temperature (°C)	-40 to +85 (-40°F to 185°F)			
Machine dimension (HxWxD) (CM)	42x13.5x25(16.5x5x10in)			
Power source weight (KG)	6.1(13.5lbs)			
Packing dimension (HxWxD)(CM)	56x27x28(22.5x10.6x11in)			
Packing weight(KG)	11.2(25lbs)			

Table 3.1

3-2. Duty cycle & Over heating

Duty Cycle is percentage of 10 minutes that unit can weld at rated load without overheating.

If unit overheats, output stops, over-heat protection lamp (yellow) will illuminate. Wait 15 minutes for unit to cool. Reduce amperage or voltage, or duty cycle before resume welding.

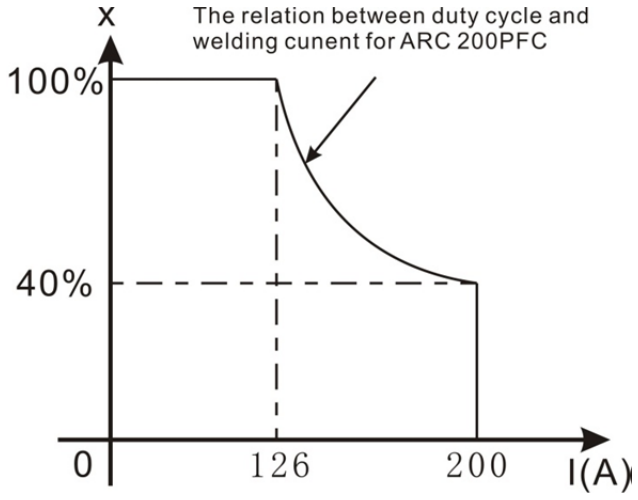


Figure 3.1

CAUTION! **EXCEEDING DUTY CYCLE CAN DAMAGE UNIT AND VOID WARRANTY.**

SECTION 4 INSTALLATIONS

4-1. STICK welding connection diagram

CoolArc200 (115v input)

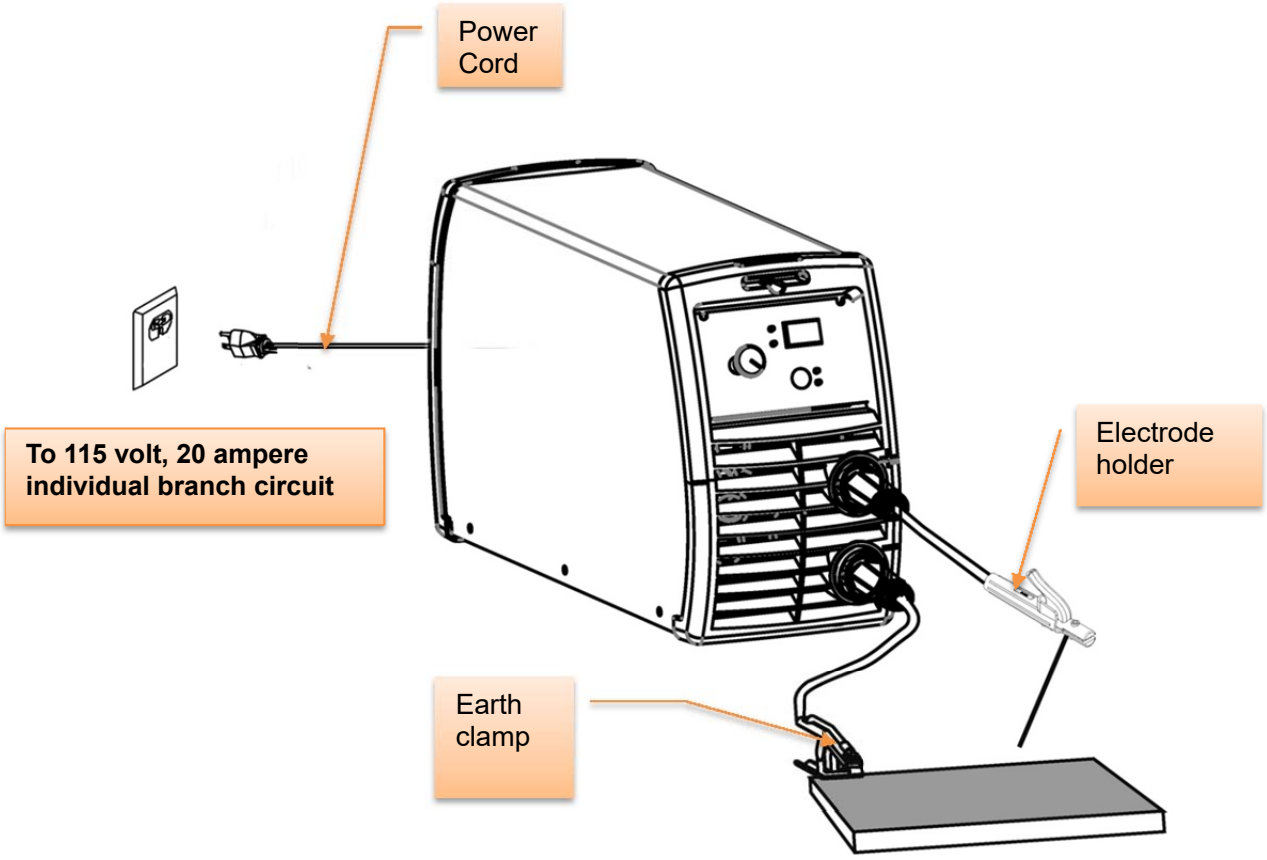


Figure 4.1

CoolArc200 (208/230v input)

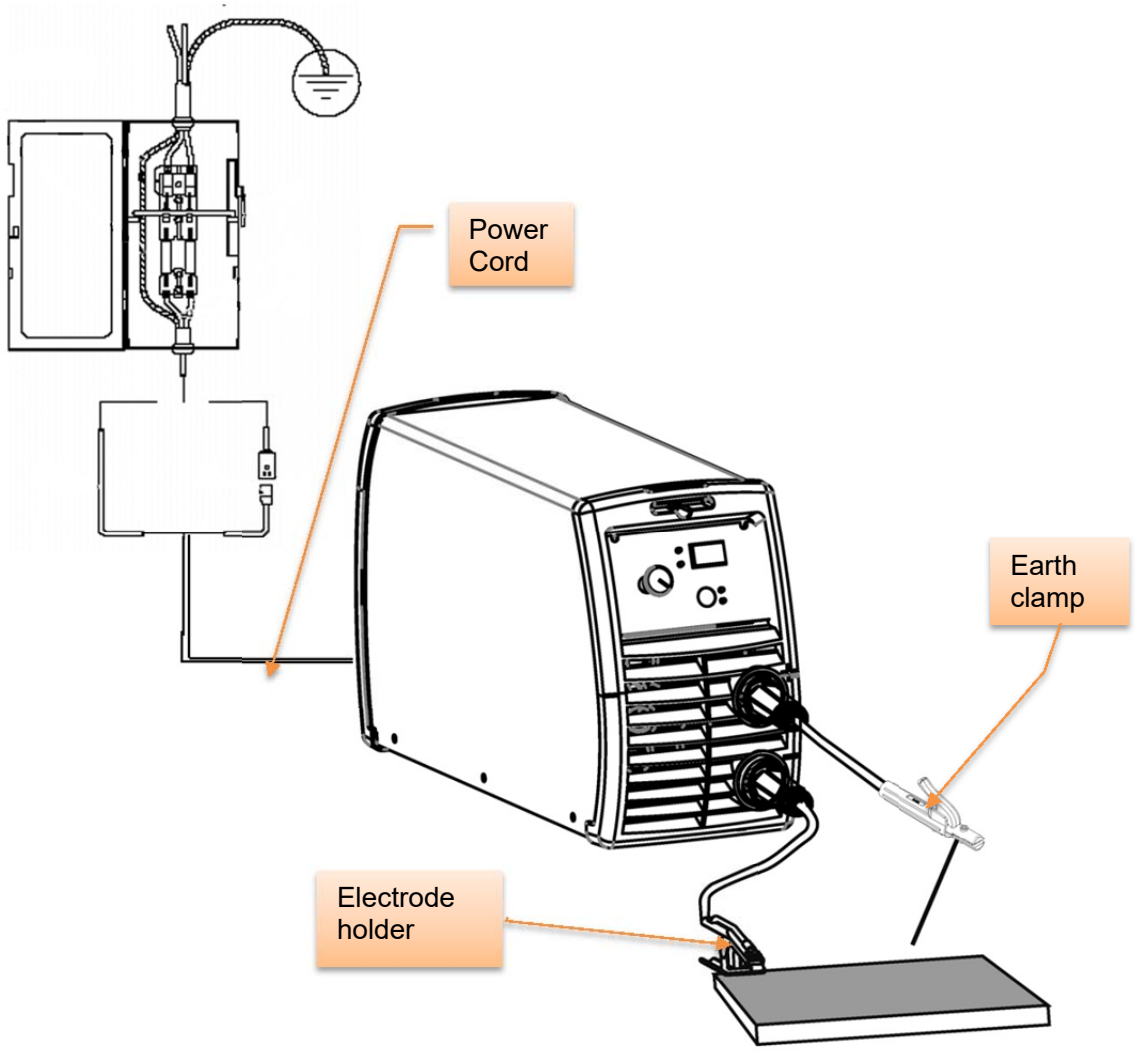


Figure 4.2

4-2. General installation procedure for STICK welding

4-2.1. Welding machine should be installed in a stable position and with good ventilation. Avoid direct sun outdoors or rain. Place at a distance of 12” (300mm) or more from walls or similar that could restrict natural air flow for cooling. Avoid transport in invert or side position.

4-2.2. Switch the ON/OFF Switch (located on the rear panel) to OFF.

4-2.3. Connect the work lead cable to the positive output terminal, and the LIFT TIG Torch cable to the negative output terminal. Refer to Figure 2.6. Insert torch/earth clamp quick connector into receptacle and turn 90º clockwise.

4-2.4. Connect the gas line/hose to the proper shielding gas source. Refer to Figure 4.1 and 4.2).

4-2.5. Slowly open the Argon Cylinder Valve to the fully open position.

4-2.6. Connect the work lead clamp to your work piece.

4-3. LIFT-TIG welding connection diagram

CoolArc200 (115v input)

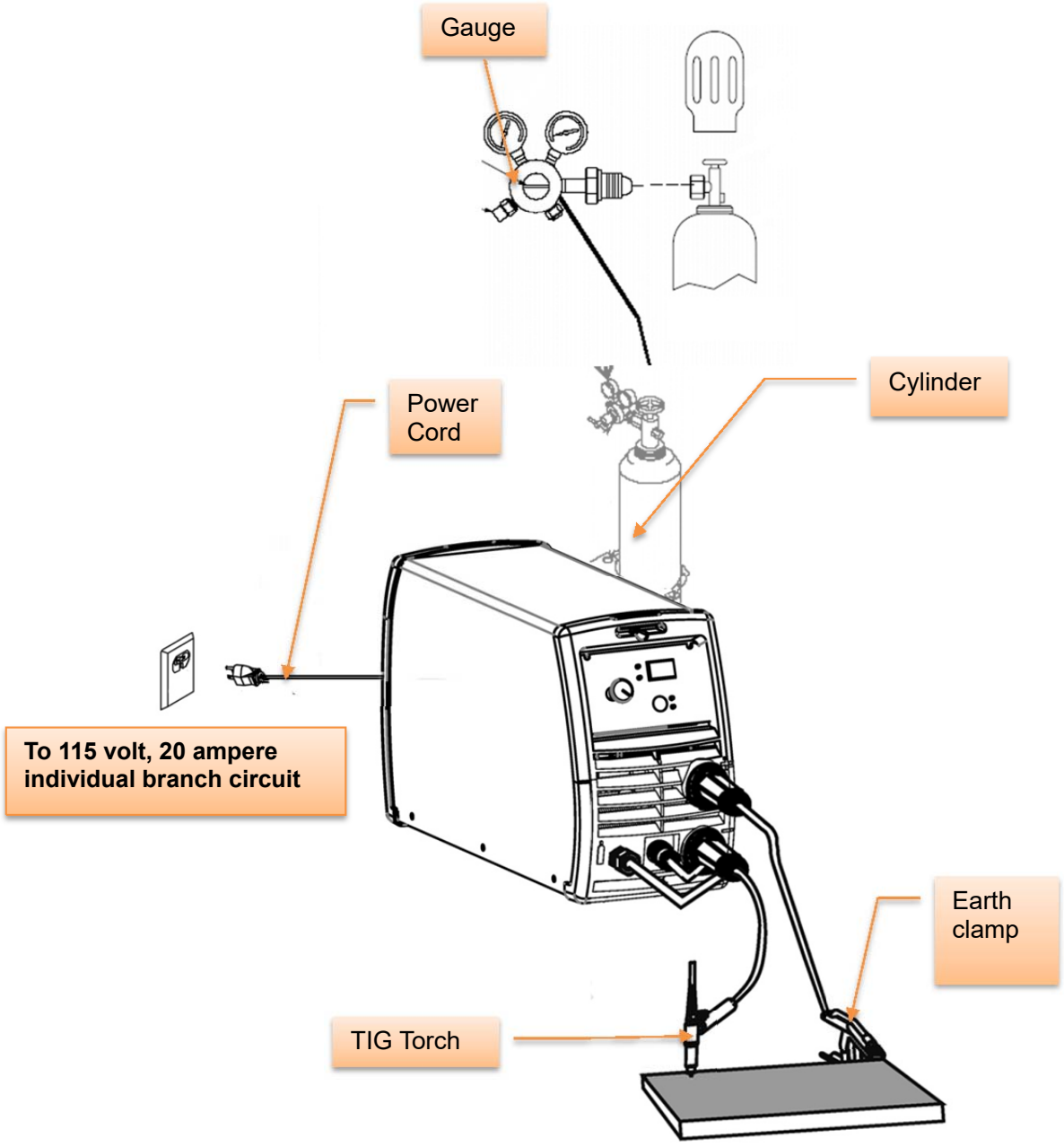


Figure 4.3

CoolArc200 (208/230v input)

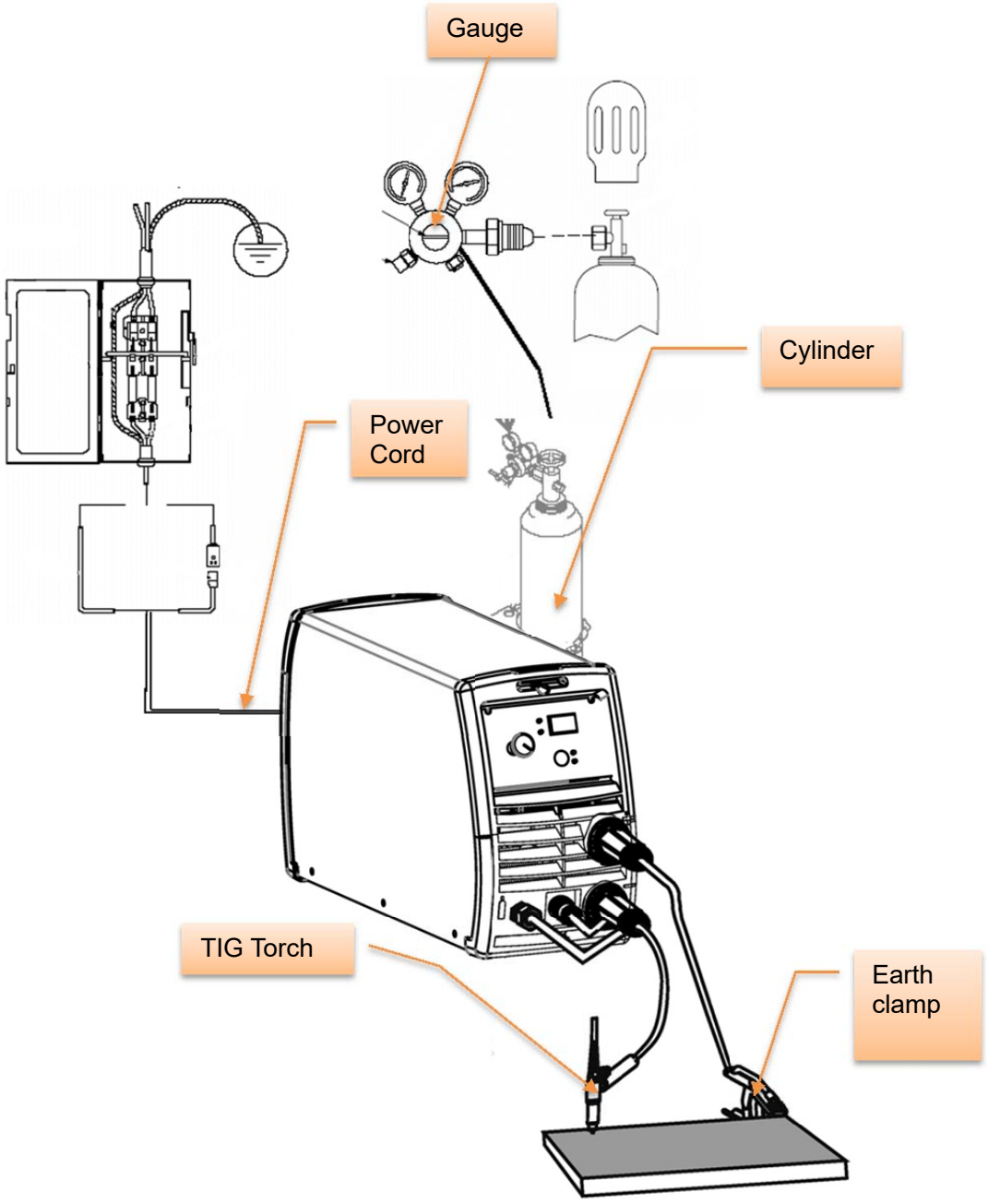


Figure 4.4

4-4. General installation procedure for Lift-TIG welding

4-4.1. Welding machine should be installed in a stable position and with good ventilation. Avoid direct sun outdoors or rain. Place at a distance of 12" (300mm) or more from walls or similar that could restrict natural air flow for cooling. Avoid transport in invert or side position.

4-4.2. Switch the ON/OFF Switch (located on the rear panel) to OFF.

4-4.3. Connect electrode holder, earth cable, according to connection diagram (refer to Figure 4.3 and 4.4). Insert Electrode holder/earth clamp quick connector into receptacle and turn 90º clockwise.

4-5. Electric service guide

CAUTION!

WARNING: THIS WELDING MACHINE MUST BE CONNECTED TO POWER SOURCE IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES

AVERTISSEMENT: LE RACCORDEMENT DE CETTE MACHINE DE SOUDAGE Á L'ALIMENTATION DOIT ÉTRE CONFORME AUX CODES D' ÉLECTRICITÉ PERTINENTS

Input voltage(V)	115	208/230
Frequency(Hz)	60	60
Input Amperes at rated output(A)	20	32
Max recommended standard fuse Rating in Amp		
Circuit breaker, time delay	20	40
Normal operation	20	55
Min input conductor size in AWG	11	11
Min Grounding conductor Size in AWG	5	5

Table 4.1

4-6. Extension Welding Cable Selection Chart

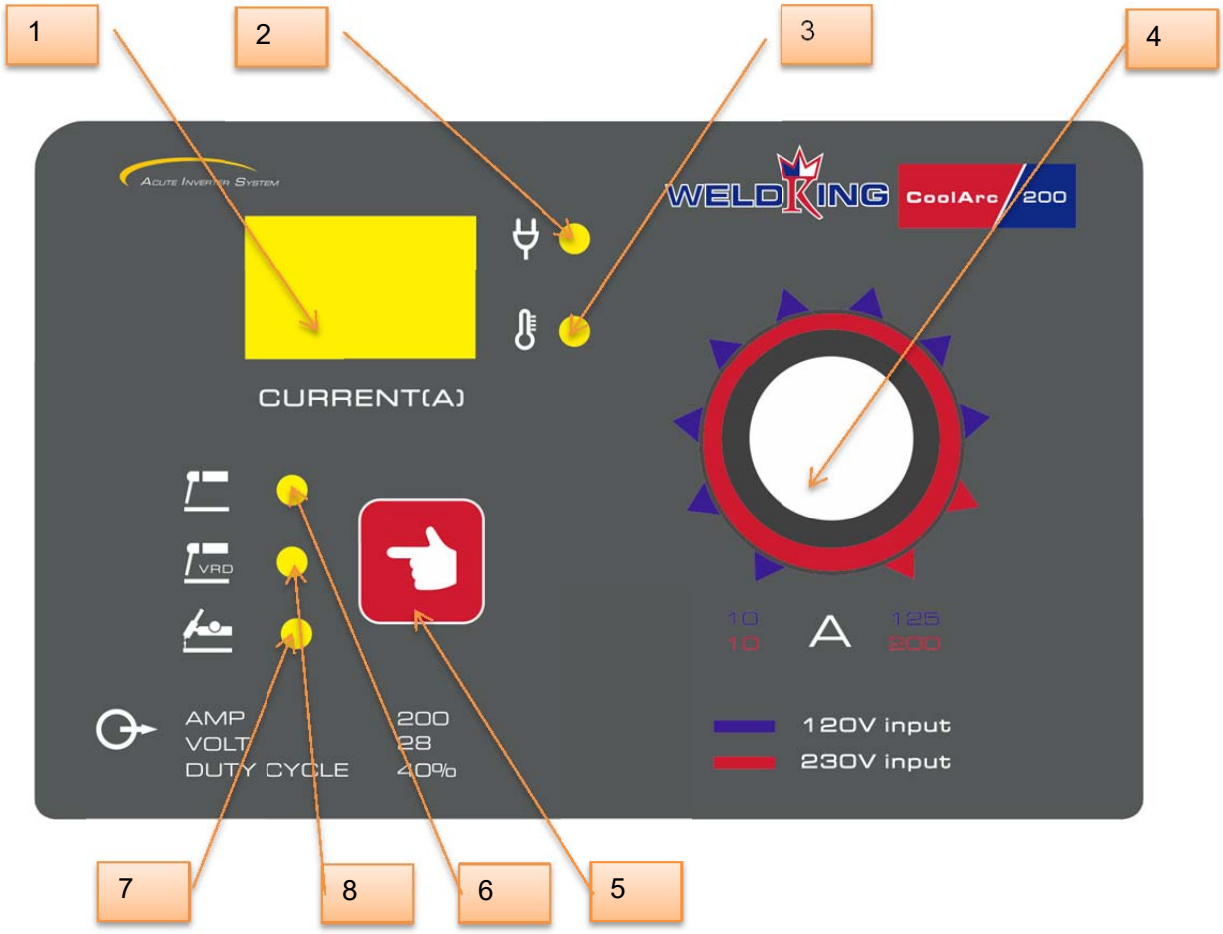
CAUTION! Use shortest cable possible. Turn off power before connecting to weld output terminals!

Welding cable size in AWG (mm^2)	Maximum total cable (Copper) length in weld circuit allowed in Ft(M)	
Welding Amperes (A)	100	200
6(13)	260(80)	130(40)
4(20)	330(100)	160(50)
3(30)	410(125)	200(60)

Table 4.2

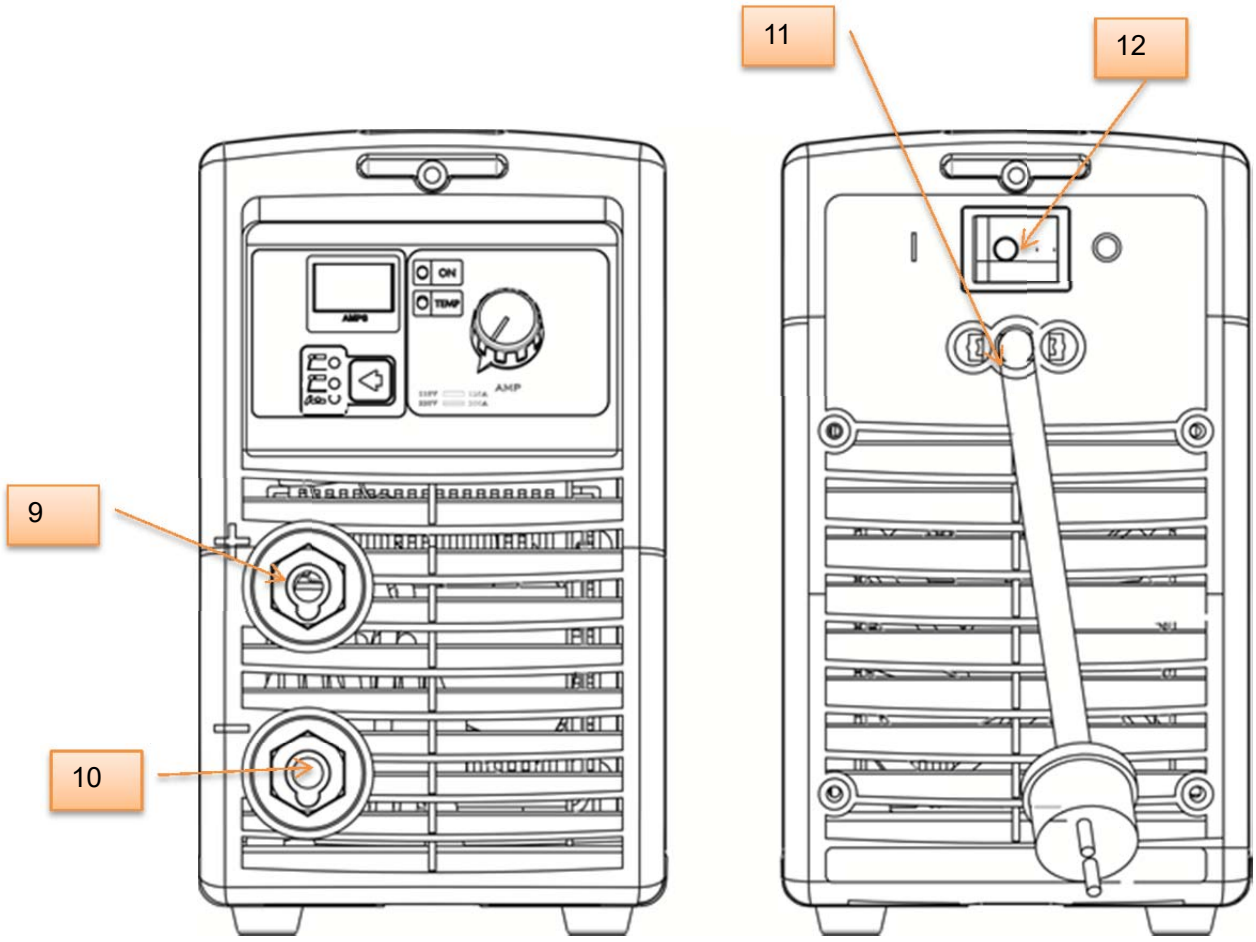
SECTION 5 OPERATION

5-1. Power source panel layout and description



1. Welding current meter (digital)
2. Power indication light
3. Protection indication light
4. Current adjustment knob
5. STICK/lift TIG selection button
6. STICK indication light
7. TIG indication light
8. STICK VRD indication light

Figure 5.1



9. Positive output

10. Negative output

11. Power cord

12. Main switch

Figure 5.2

5-2. Operation

USE SINGLE PHASE 115V/208V/230V POWER SUPPLY.

5-2.1. Switch on the power source.

5-2.2. Set Welding Current to desired value (refer to 5-3 Welding Parameter selection chart).

5-2.3. The display value of digital voltage meter will change when you turn the current knob to pre-set the welding current. During welding, the meter will reflect actual welding current output.

5-2.4. When stick welding, drag electrode across workpiece like striking a match; lift electrode slightly after touching work. If arc goes out electrode was lifted too high. If electrode sticks to workpiece, use a quick twist to free it.

5-2.5. When TIG welding. Turn on the gas valve on the torch; adjust gas volume to 3-5L/MIN. check if there is gas leaking.

5-2.6. Touch tungsten electrode to workpiece at weld start point. **Hold electrode to Workpiece for 1-2 seconds**, and then slowly lift electrode. Arc is formed when electrode is lifted. Aim Tungsten electrode to the welding seam.

5-2.7. After arc is ignited, move the torch along seam evenly. Fine tune the welding parameter to obtain exquisite welding seam.

5-2.8. After finish operation, turn off the gas valve (for TIG). At the end, turn off welding power source and wall switch.

5-3. Welding Parameter selection chart

The setting listed below is just for initial commission of the machine. The parameter can be refined during welding.

STICK:

Electrode diameter (mm)	Welding current (A)	Welding voltage(V)
1.0	20~60	20~23
1.6	44~84	22~24
2.0	60~100	22~24
2.5	80~120	23~25
3.2	100~150	24~26
4.0	140~180	25~27

Table 5.1

TIG:

CAUTION

GRINDING THE TUNGSTEN ELECTRODE PRODUCES DUST AND FLYING SPARKS WHICH CAN CAUSE INJURY AND START FIRES.USE LOCAL EXHAUST AT THE GRINDER OR WEAR AN APPROVED RESPIRATOR

Plate thickness (mm)	Tungsten electrode diameter (mm)	Taper of tungsten electrode (°)	Tungsten electrode end diameter (mm)	Welding current (A)	Max argon flow rate (L/min)	Weld layer
0.2	1.0~1.6	10	0.1	10-15	2	1
0.4	1.0~1.6	20	0.12	15-20	2.5	1
0.6	1.0~1.6	20	0.25	15-30	2.5	1
1.0	1.0~1.6	25	0.50	25-50	3	1
1.6	1.0~1.6	30	0.75	50-70	4	1
2.4	1.6~2.4	35	0.75	65-95	6	1
3.0	1.6~2.4	45	1.10	90-120	7	1-2

Table 5.2

SECTION 6 TROUBLE SHOOTING

6-1. General trouble shooting

No	Problem		Cause	Solution
1	Power Indication lamp does not on after switch on the main switch		Loose contact at input lead	Check contact situation
			Lamp malfunction, poor contact	Check contact situation. Replace lamp
			Main switch malfunction	Check switch, replace if necessary
2	Cooling fan stops to rotate after machine has worked a period	Power indication lamp on	Cooling fan blade blocked by obstacle.	Clear
			Cool fan failure	Check fan, replace if necessary
		Power indication lamp off	See No. 1	
3	Overheat light on		Work excess the rate duty circle	Use under rate duty circle
			Input voltage is too high	Use under rate input voltage
4	The mains power circuit breaker or fuse nuisance trip		High ambient temperature	Use machine under rated ambient temperature
			Using an extension cable	Use extension cable according to section 4-6

		Low line mains power voltage	Use input voltage according to specification
		Rectifier short circuit	Check and replace
		Main transformer short circuit	Check and replace
		Control transformer short circuit	Check and replace
		Cooling fan short circuit	Check and replace
5	The digital meter do not display properly	The LED is broken	Change the LED
6	The preset current range does not meet the machine specification	Initial setting at PCB is not accurate	Adjust potentiometer Imin on the control PCB for min current and Imax for max current
7	No OCV	Problem main circuit	Check control PCB, Power PCB and IGBT module
	No arc	Welding cable and earth cable is loose or broken	Check and repair
	Difficult to strike the arc or electrode stick to the workpiece	Loose connection	Check connection and repair
		Surface of the workpiece is contaminated by oil or rust	Clean the workpiece surface.
		Selected wrong welding process.	Use the correct process at panel
	Welding current cannot be adjusted	Welding current adjustment potentiometer is loose or damage	Check and repair

Table 6.1

6-2. TIG/STICK welding trouble shooting

No.	Problem	Cause	Solution
10	Erratic or improper weld output.	Wrong cable size	Choose the right cable size
11	Cable or receptacle too hot.	Wrong electrode holder size	Choose the right size electrode holder
		Poor contact between welding or earth cable and receptacle at machine	Clean and tighten all weld connections
		Poor connection between electrode hold and welding cable	Clean and tighten
13	Unstable or wandering arc	Gas not pure	Changes gas
		Gas pressure too high	Reduce pressure
		Control circuit failure	Check, repair, replace circuit board
		Welding cable size or type is not proper	See Table 4.1
		Electrode selection is not proper	See Table 5.1
		the work piece surface contaminated by oil	Clean the workpiece surface
		Poor contact inside the gun	Check, repair, replace
		Rectifier failure	Check, replace
		Output reactor failure	Check, replace
		Output capacitor failure	Check, replace

		Remote control failure	Check resistance and connections for remote Amperage control potentiometer
14	Tungsten electrode oxidizing(not bright) after welding	Gas shield inadequate	check nozzle
		Gas not pure	Check if there is water in torch and repair. Check and tight all gas fitting
		Gas pressure inadequate	Increase gas pressure

Table 6.2

SECTION 7 MAINTENANCE

7-1. Maintenance

Periodic maintenance is necessary for keeping the machine work properly.

CAUTION! DISCONNECT POWER INPUT AND SWITCH OFF THE MAIN POWER SWITCH BEFORE START OF MAINTENANCE.

Regular Check and Inspection	6 Month Routine Maintenance
• Replace unreadable labels. • TIG-Clean spatter inside the nozzle when continuously use the machine • TIG-Check and change broken parts in the torch to avoid damage to the torch and machine. • Check the function of all switches. • Check if the fan rotates properly and if there is air venting out from back of the machine. • Pay Attention to the abnormal vibration, noise, smell and gas leakage during operation. • Check if the welding cables are over heated. • Check if the cable connections are over heated. • Check if the cable is connected firmly and properly, if it is broken and cause bad insulation. • Check the cover grounded properly.	• Blow out with dry clean pressure air or vacuum inside machine, especially transformer coil and power component. • Check the electric connection of input/output bar to avoid bad contact caused by loose or rusted screw. • Check the contactors and relays in the machine or on the PCB work properly. • Calibrate the current meter. • Check the resistance between machine case and main circuit, if the value is smaller than 1MΩ, sent the machine to an authorized warranty depot to inspect and repair immediately.

Table 7.1

7-2. Safety precaution

Refer to the American National Standard Z49.1 entitled: SAFETY IN WELDING AND CUTTING.

ALL INSTALLATION, OPERATION, MAINTENANCE, AND REPAIR WORK MUST BE PERFORMED BY QUALIFIED PERSONAL.

7-2.1.Welders must be equipped with welding mask, gloves and tie the sleeves and collar properly. Use Table 6.4 to choose proper glass shade, also can reference to ANSI Z49.1 listed in Safety Standards. There should be an arc shield around welding field to protect others from arc shock.

7-2.2.Do not weld near flammable, explosive materials or gases.

7-2.3.Gas cylinder must be located at a safe and steady place to avoid injury others.

7-2.4.Keep finger, hair and clothing away from the rotating fan.

7-2.5.The power source must be grounded when welding.

7-2.6.When yellow protection light is enlightened during welding, it is indicating that the welder is over current or over heat, and automatic protection will be triggered. Stop welding immediately and wait until welder cool down.

7-2.7.Welding machine should not work in a flammable and toxic environment, avoid moisture, rain, and do not directly expose to sun.

7-2.8.Do not switch off the welder during welding!

7-2.9.Periodically maintain the machine and clean the dust inside.

Lens Shade Selector Guide

Operation /Process	Electrode Size in. (mm)	Arc Current (Amperes)	Minimum Protective Shade	Suggested* Shade No. (Comfort)
Shielded metal arc welding (SMAW)	Less than 3/32(2.5) 3/32−5/32 (2.5−4) 5/32−1/4 (4−6.4) More than 1/4 (6.4)	Less than 60 60−160 160−250 250−550	7 8 10 11	— 10 12 14
Gas tungsten arc welding (GTAW)		Less than 50 50−150 150−500	8 8 10	10 12 14
AWS F2.2:2001 (R2010), Adapted with permission of the American Welding Society (AWS), Miami, Florida				

Table 7.2

SECTION 8 PARTS LIST

Item	Order No.	Description	Note	Qty
1	8.301RM.386	Cover	Curve penal ARC 200PFC/160PFC	1
2	W.496RM.332-A-1	EMC board(similar to GYS)	Base board(B.067RM.332-A)	1
3	7.231.088-B	Thermistor	CWF4B103J4250 600mm without pin shangying 3750V	2
4	8.422RM.318	Heat sink I	ARC 160 PFC/200 PFC HZ Penal /w:S.021RM.379-E	1
5	8.068.011	Rear penal	ZX7-160 simple	1
6	7.232.739	Toggle switch(red)	JD03-A1 30A(high end) red 125/250V AC UL certificate	1
7	8.122RM.386	Fan installation plate	ARC 160/200 PFC curve penal	1
8	8.304RM.001	Fan cover	Curve penal	1
9	7.720.053	Fan	MODEL 3610VL-05W-B70 24VDC 0.49A	1
10	8.123RM.919	Middle sport plate	Enhanced nylon	1
11	8.423RM.089	MCR heat sink	ARC 200 PFC HZ penal /w:S.021RM.379-E	1
12	8.713RM.200	MCR insulation cap	95.7*31.8*10 for 4 pc MUR dust proof	1
13	7.401.079	Fast recovery diode	STTH60W03CW	4
14	W.496RM.254-B-1	MMA-180 MUR board	Base board B.067RM.254-B /w M4 Riveting	1
15	8.055RM.386	Bottom PCB	ARC 160/200 PFC curve penal	1
16	8.046.001	Foot pad	Small mosfet model. AC foot pedal	4
17	8.422RM.320	Heat sink III	ARC 200 PFC HZ penal /w:S.021RM.379-E	1

18	8.422RM.321	Heat sink IV	ARC 200 PFC HZ penal /w:S.021RM.379-E	1
19	8.123RM.382	Supporting bar	HZ penal ARC 160PFC/200PFC	1
20	L.185RM.379-U	Transformer	ARC 200 PFC /w S.021RM.379-E CSA certificate	1
21	W.496RM.515	ARC160/200E-PFC absorb PCB	Base board: B.067RM.515	1
22	8.069RM.909-A	Front penal	With Φ12 hole	1
23	7.152.313-A	Quick connector female without plastic cover(zhengyuan)	CX58 35-70MM Hexagon thickness 12MM	2
24	7.224.300-B1	Push button(minghan)	T2	1
25	8.306RM.386-A	Penal installation plate	ARC 160/200 PFC curve penal with stud length change	1
26	7.458.505	Knob	middle size φ21*15(black body with grey cap)	1
27	L.271RM.071-U	PFC induction	Ferrite ring /w S.021RM.071-FU CSA certificate	1
28	WP.496RM.507-1	ARC 200PFC control pcb mini	Base board BP.067RM.507	1
29	8.422RM.319	Heat sink II	ARC 200 PFC HZ penal /w:S.021RM.379-E	1
30	7.411.250-A	Rectifier bridge	S60VB100DT 32*32	1
31	8.212.020	Rectifier position pin	Φ 13.5*7.3 DMC	1
32	7.401.074	Fast recovery diode	MUR1560 TO-220	3
33	8.713.182	Insulation block(2 hole)	polycarbonate (2 holes 10mm)	3
34	8.123RM.927	TIG200 main board seal box	158*150*17.5 ABS	1
35	W.496RM.453-H-1	ARC200E-PFC main pcb	Base board B.067RM.453-H	1

36	8.713.184	Insulation block(4)	polycarbonate (3 holes 12mm)	6
37	7.425.555	Single transistor igbt module	STGW60V60DF	6

Table 8.1

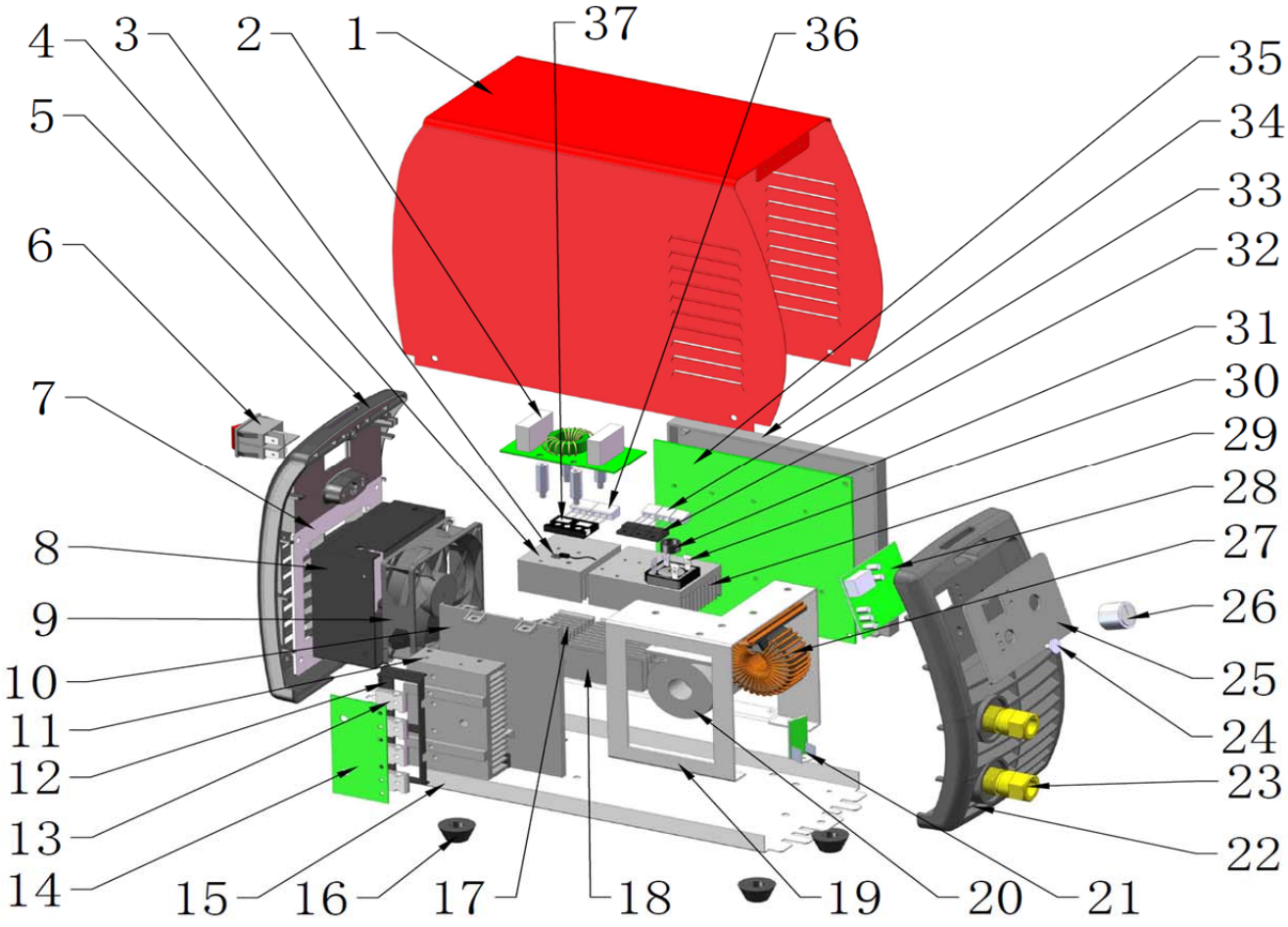

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Figure 8.1

NOTES

SECTION 9 ELECTRIC DIAGRAM

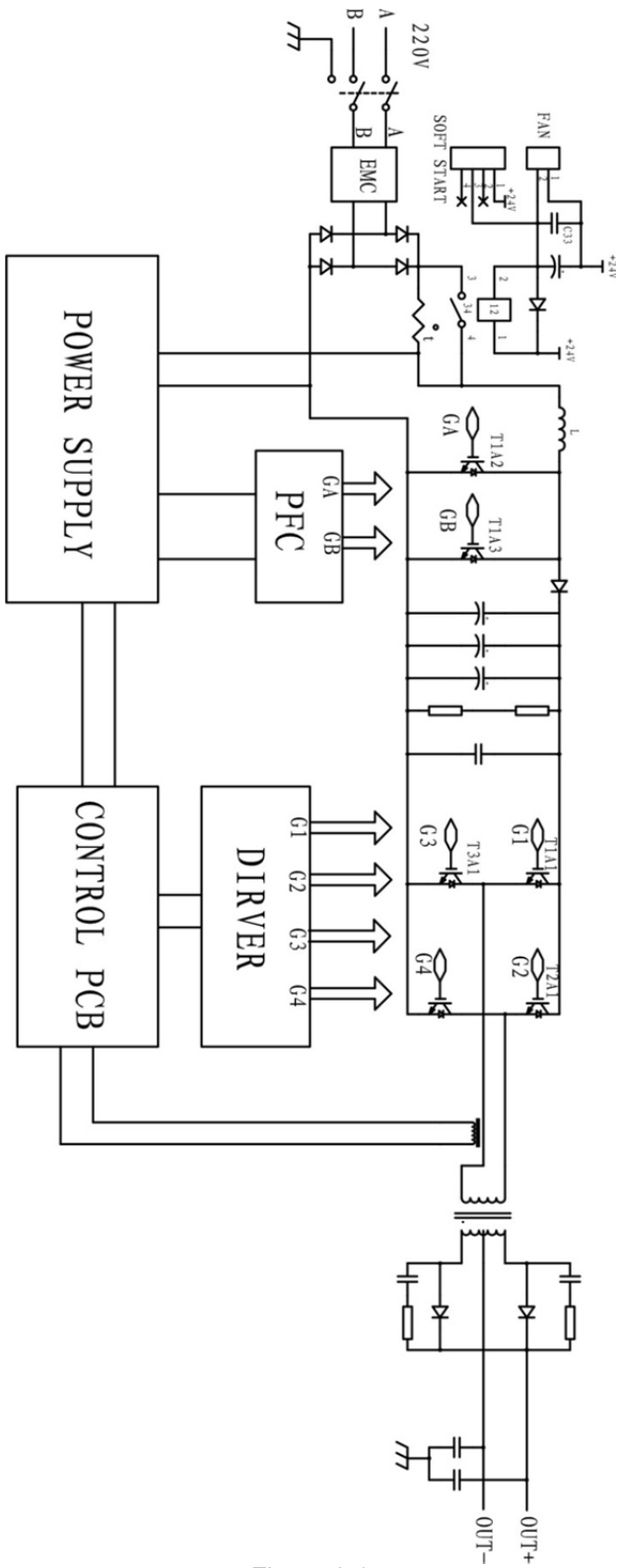

Figure 9.1

SECTION 10 WARRANTY POLICY

Malo Welding Products Ltd., Warranty Policy

Effective August 1st, 2004, revision at April 1st, 2011

LIMITED WARRANTY - Subject to the terms and conditions below, Malo Welding Products Ltd.(WELDKING®) endeavors to provide high quality products and product support to its customers and therefore backs up all of its new products purchased from Malo Welding Products Ltd.(WELDKING®) or any authorized Malo Welding Products Ltd.(WELDKING®) distributor/service center after the effective date of this limited warranty and is free of defects in material and workmanship at the time it is shipped. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE FACE OF THE MALO WELDING PRODUCTS LTD.(WELDKING®) WARRANTY. MALO WELDING PRODUCTS LTD.(WELDKING®) DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, REGARDING THE PRODUCTS, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NONINFRINGEMENT. IN THE UNITED STATES, SOME STATES DO NOT ALLOW THE EXCLUSION OF THE IMPLIED WARRANTIES, SO THE ABOVE EXCLUSION MAY NOT APPLY TO YOU.

Malo Welding Products Ltd.(WELDKING®) shall honor warranty claims on warranted equipment listed below in the event of such a failure within the warranty time periods. All warranty time periods start on the date that the equipment was delivered to the original retail purchaser, or one year after the equipment is sent to a North American distributor.

(1) 3 Years - Parts and Labor

Power Sources

Wire Feeders

(2) 90 Days - Parts (No Labor)

Guns

Remote Controls

Accessory Kits

Replacement Parts (No labor)

Malo Welding Products Ltd.(WELDKING®)'s limited Warranty shall not apply to:

(1) Consumable components; such as contact tips, cutting nozzles, contactors, brushes, slip rings, relays or parts that fail due to normal wear.

(2) All limited warranties are void for, and Malo Welding Products Ltd.(WeldKing®) does not warrant in any way, any product that evidences misapplication, improper installation, abuse, lack of maintenance, negligence in use or care, abnormal use, alteration of design, use of incompatible or corrosive chemicals, and/or servicing, installation of parts, or repairs by anyone other than Malo Welding Products Ltd.(WELDKING®) or a Malo Welding Products Ltd.(WELDKING®) authorized distributor or service center. Malo Welding Products Ltd.(WELDKING®) may make changes in products it manufactures and markets at any time; these changes are made without obligation to change, retrofit, or upgrade any product previously sold or manufactured.

MALO WELDING PRODUCTS LTD.(WELDKING®) 'S PRODUCTS ARE FOR COMMERCIAL/INDUSTRIAL USE AND PERSONS TRAINED AND EXPERIENCED IN THE USE AND MAINTENANCE OF WELDING/PLASMA CUTTING EQUIPMENT.

In the event of a warranty claim covered by this warranty, the exclusive remedies shall be, at Malo Welding Products Ltd.(WELDKING®)'s option: (1) repair; or (2) replacement; or, where authorized in writing by Malo Welding Products Ltd.(WELDKING®), in appropriate cases, (3) the reasonable cost of repair or replacement at an authorized service station; or (4) payment of or credit for the purchase price (less reasonable depreciation based upon actual use) upon return of the goods at customer's risk and expense. No compensation or reimbursement for transportation costs of any kind will be allowed.

LIMITATION OF DAMAGES: THE REMEDY OF REPLACEMENT OR REPAIR OF ANY DEFECTIVE GOODS SHALL BE THE EXCLUSIVE REMEDY UNDER ANY WARRANTY MADE BY MALO WELDING PRODUCTS LTD.(WELDKING®), WHETHER EXPRESS OR IMPLIED. IN NO EVENT SHALL MALO WELDING PRODUCTS LTD.(WELDKING®) BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, PROPERTY DAMAGES, OR PERSONAL INJURIES.

ANY EXPRESS WARRANTY NOT PROVIDED HEREIN AND ANY IMPLIED WARRANTY, GUARANTY OR REPRESENTATION AS TO PERFORMANCE, AND ANY REMEDY FOR BREACH OF CONTRACT TORT OR ANY OTHER LEGAL THEORY WHICH, BUT FOR THIS PROVISION, MIGHT ARISE BY IMPLICATION, OPERATION OF LAW, CUSTOM OF TRADE OR COURSE OF DEALING, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE, WITH RESPECT TO ANY AND ALL EQUIPMENT FURNISHED BY MALO WELDING PRODUCTS LTD.(WELDKING®), IS EXCLUDED AND DISCLAIMED BY MALO WELDING PRODUCTS LTD.(WELDKING®).

If any provision or portion of this limited warranty policy is found to be unenforceable, then the remaining provisions and portions shall remain valid and enforceable. If any provision or portion of this limited warranty policy is found to be limited by law, then that provision or portion shall be construed to make it effective within the bounds of law.

To obtain warranty service you must active your product(s)'s warranty online at weldking.com or mail the product registration card included in the package to Malo Welding Products Ltd.(WELDKING®) right after the purchase. When there is a warranty issue, return the defective welding machine or plasma cutting machine along with proof of purchase to any WeldKing® Authorized Warranty Depot. For the location of the nearest WeldKing® Authorized Warranty depot or for service information in the United States or Canada, please telephone toll free: 1-866-686-5088 or visit www. weldking.com (USA & Canada).available, but may vary from province to province.

SECTION 11 AUTHORIZED SERVICE CENTER

Please go to our website www.weldking.com to fill the warranty registration form. Malo Welding Products Ltd. will not distribute of disclose customer's private information to any third party and will not sent promotion material to the customer.

Find your nearest warranty center at:

http://www.weldking.com/servicelocations.aspx