



COOLTIG220

OWNER'S MANUAL



PULSED TIG (P-GTAW)



STICK (SMAW)

Arc Welding Power Source

Manufactured at



Certified Facility

Serial Number:

Where Purchase:

Date of purchased:




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

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Table of Contents

SECTION 1	SAFETY PRECAUTIONS.....	1
SECTION 1	CONSIGNES DE SÉCURITÉ	1
1-1.	Symbol Usage Symboles utilisés	1
1-2.	Arc welding Hazards Dangers relatifs au soudage à l'arc	1
1-3.	Safety Standards Normes de sécurité.....	6
1-4.	EMF Information EMF Information	6
SECTION 2	PACKING LIST	7
SECTION 3	BASIC INFORMATION.....	8
3-1.	Power source specifications	8
3-2.	TIG torch specifications	9
SECTION 4	INSTALLATIONS.....	11
4-1.	TIG(AC/DC) welding connection diagram	11
4-2.	General installation procedure for TIG welding.....	12
4-3.	STICK welding connection diagram	13
4-4.	General installation procedure for STICK welding	13
4-5.	Electric service guide	14
4-6.	Extension Welding Cable Selection Chart	15
SECTION 5	OPERATION	16
5-1.	Power source panel layout and description	16
5-2.	Operation(TIG)	18
5-3.	Operation(STICK).....	20
5-4.	Operate with remote current control device connected(TIG only)	20
5-5.	Short circuit protection while welding	21
5-6.	Welding Parameter selection chart.....	21
5-7.	Torch /Foot pedal control connection receptacle (12 pins) (TIG).....	23
SECTION 6	TROUBLE SHOOTING.....	25
6-1.	General trouble shooting	25
6-2.	TIG/STICK welding trouble shooting	29
SECTION 7	MAINTENANCE	34
7-1.	Maintenance	34
7-2.	Safety precaution.....	35
SECTION 8	PARTS LIST.....	36
SECTION 9	ELECTRIC DIAGRAM.....	45
SECTION 10	WARRANTY POLICY	46
SECTION 11	AUTHORIZED SERVICE CENTER.....	47

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 procédure 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 afférents 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 manuel pour attirer l'attention et identifier les dangers possibles. En présence de l'un de ces symboles, prendre garde et suivre les instructions afférentes pour éviter tout risque. Les instructions en matière 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 épiésés.
- 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-le-champ les pièces endommagées. Entretien 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'écaillage, 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 touch 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 partie 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 tels 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.



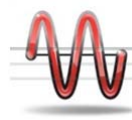
**MOVING PARTS can cause injury.
DES ORGANES MOBILES peuvent provoquer des blessures.**

- 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.ihc.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.ihc.com).

Code for Safety in Welding and Cutting, CSA Standard W117.2, de Canadian Standards Association, Standards Sales, 178 Rexdale Boulevard, Rexdale, Ontario, Canada M9W 1R3 (téléphone : 800-463-6727 ou à Toronto 416-747-4044, site Internet : www.csa-international.org).

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:

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 examiné plus de 500 études qui ont été faites pendant une période de recherche 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 recherche 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.

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

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 concerne les stimulateurs 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 précédente

SECTION 2 PACKING LIST

CoolTig package (Part No: WMT05001)		
Description	Part no	Quantity
CoolTig-220 Power source come with 10 ft. (3 M) Power cord and molded NEMA 6-50P 230V AC Plug	n/a	1
WeldKing® PRO26 TIG gun 12.5 ft (4M) with on-off switch and 30-70 Dinse Style connection	WAT31100	1
Torch accessories kit	n/a	1
Argon Regulator / Gauge	07000510	1
6.5 ft. (2M) gas hose with Male 5/8-18 gas connector on both end	n/a	1
300 Amp ground clamp with 10ft (3M) #4 lead and 50mm male Dines plug.	07000462	1
Owner' manual	WDT90100	1

Table 2.1

SECTION 3 BASIC INFORMATION

3-1. Power source specifications

CoolTig220 (Part No: WMT05001)			
Power supply	AC (208)V/230V,60Hz, 1 phase		
Welding Process	TIG AC	TIG DC	STICK
Input Amps @ Maximum output(A)	35.9	39.9	41.2
Rated input (KW)	8.24	9.16	9.46
OCV (V)	64	70.8	70.6
Amperage range(A)	10-220		10-170
Duty cycle (%) @ 40°C	25%@220A/18.8V 60%@145A/15.8V 100%@110A/14.4V		25%@170A/26.8V 60%@110A/24.4V 100%@85A/23.4V
Power factor	0.6		
Protection class	IP21S		
Insulation class	H		
Operating temperature (°C)	-10 to +40 (14°F to 104°F)		
Storage temperature (°C)	-40 to +85 (-40°F to 185°F)		
Power source dimension (HxWxD) (CM)	45×16×29 (18x6.3x11.4in)		

Power source weight (KG)	7.6 (16.8lbs)
Packing dimension (HxWxD)(CM)	56x31x36(22x12x14in)
Packing weight(KG)	12 (26.5lbs)

Table 3.1

3-2. TIG torch specifications

Model	PRO17 (Part no. WAT31100)
Rated currency(A)	150A DC, 115A AC
Rated duty cycle (%)	60
Cooling style	Air cooled
Air consumption (l/min)	4-15
Cable length(M)	4(12.5ft)
Electrode Range(mm)	0.5 – 3.2(0.020 –1/8 in)
Detailed gun specification please see separate torch manual.	

1 x Accessories Kit containing 1 x Short Back Cap, 1 x Collet Body 1/8" (3.2mm), 1 x Collet Body 3/32" (2.4mm), 1 x Collet Body 1/16" (1.6mm), 1 x Collet 1/8" (3.2mm), 1 x Collet 3/32" (2.4mm), 1 x Collet 1/16" (1.6mm), 1 x Nozzle Alumina No5, 1 x Nozzle Alumina No6, 1 x Nozzle Alumina No7, 1 x Tungsten Electrode 1/8" (3.2mm) Thoriated Type (red band), 1 x Tungsten Electrode 3/32" (2.4 mm) Thoriated Type (red band) and 1 x Tungsten Electrode 1/16" (1.6mm) Thoriated Type (red band).

Table 3.2

3-3. Process/Polarity Table

Process	Polarity	Cable Connections	
		Cable To torch/electrode holder	Cable To Work
STICK process	DCEP – Reverse polarity	Connect to positive(+) output terminal	Connect to negative(-)output terminal
TIG process both AC and DC	DCEN – Straight Polarity	Connect to negative(-) output terminal	Connect to positive(+)output terminal

Table 3.3

SECTION 4 INSTALLATIONS

4-1. TIG(AC/DC) welding connection diagram

CoolTig220 (208/230v input)

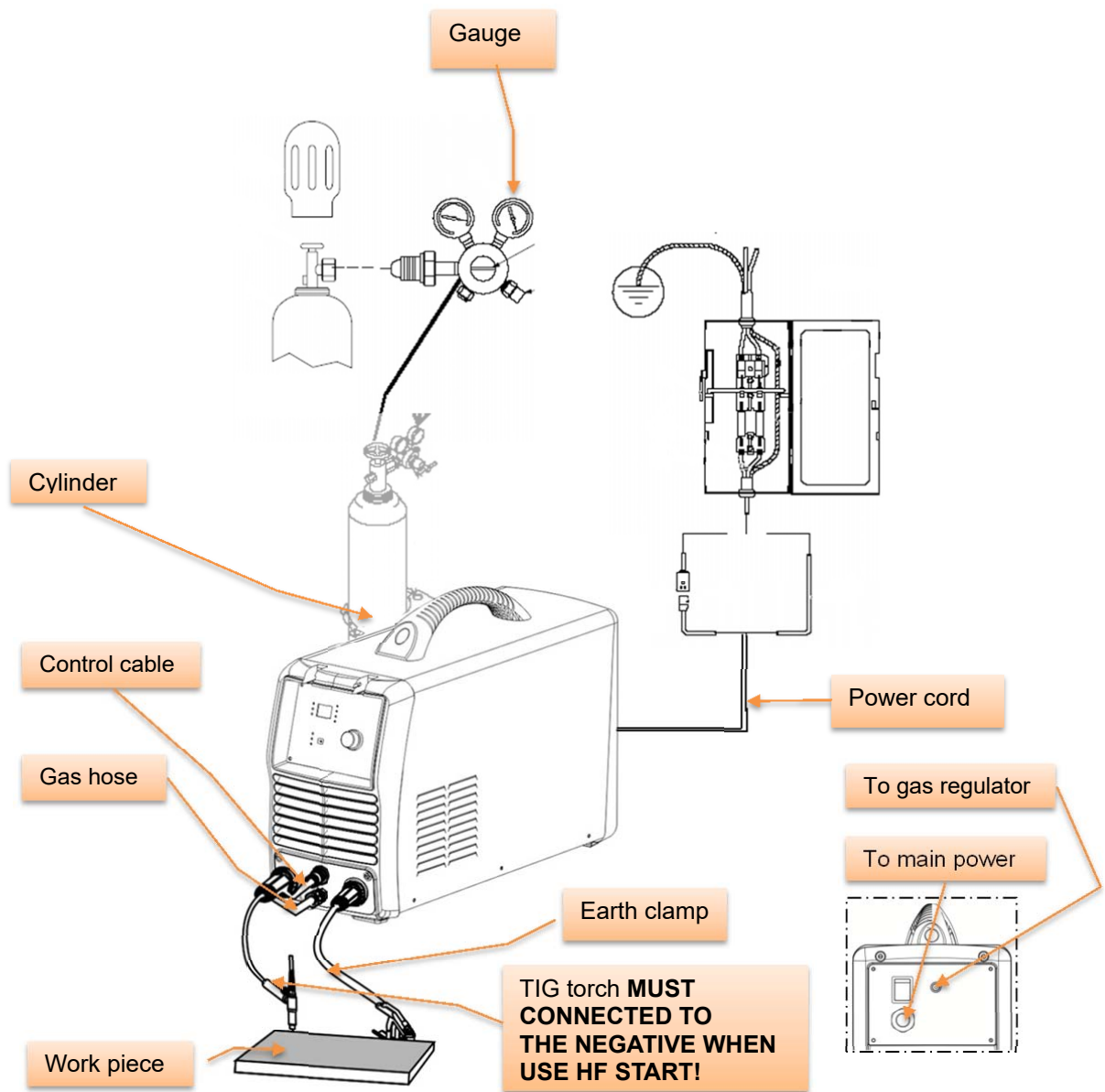


Figure 4.1

4-2. General installation procedure for TIG 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 to OFF.

4-2.3. Connect the work lead cable to the positive output terminal, Insert earth clamp quick connector into receptacle and turn 90° clockwise. Refer to section 4.1. TIG torch must connected to negative output when use Hi Frequency arc strike!

4-2.4. Connect the gas line/hose to the proper shielding gas source. Refer to section 4.1.

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.

4-2.7. Connect machine with 208/230V single phase power supplies.

4-3. STICK welding connection diagram

CoolTig220 (208/230v input)

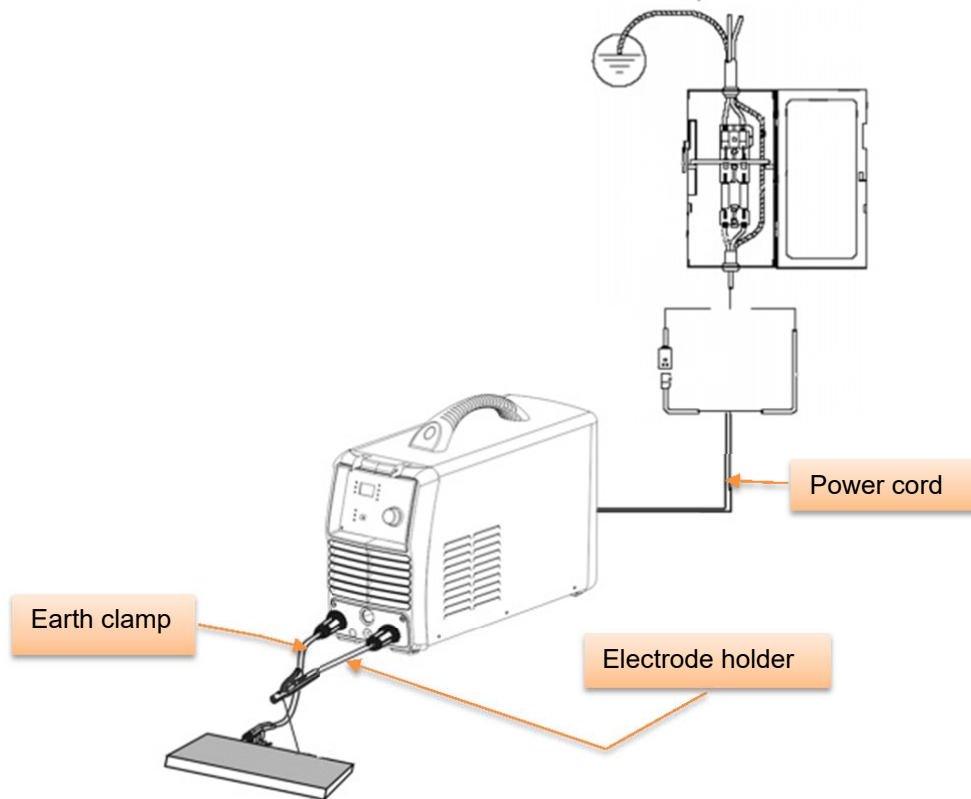


Figure 4.2

4-4. General installation procedure for STICK 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 section 4.3). Insert Electrode holder/earth clamp quick connector into receptacle and turn 90° 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 À L'ALIMENTATION DOIT ÊTRE CONFORME AUX CODES D'ÉLECTRICITÉ PERTINENTS

Input voltage(V)	208/230
Frequency(Hz)	60
Input Amperes at rated output(A)	24.5
Max recommended standard fuse Rating in Amp	
Circuit breaker, time delay	30
Normal operation	35
Min input conductor size in AWG	12
Min Grounding conductor Size in AWG	12

Table 4.1

4-6. Extension Welding Cable Selection Chart

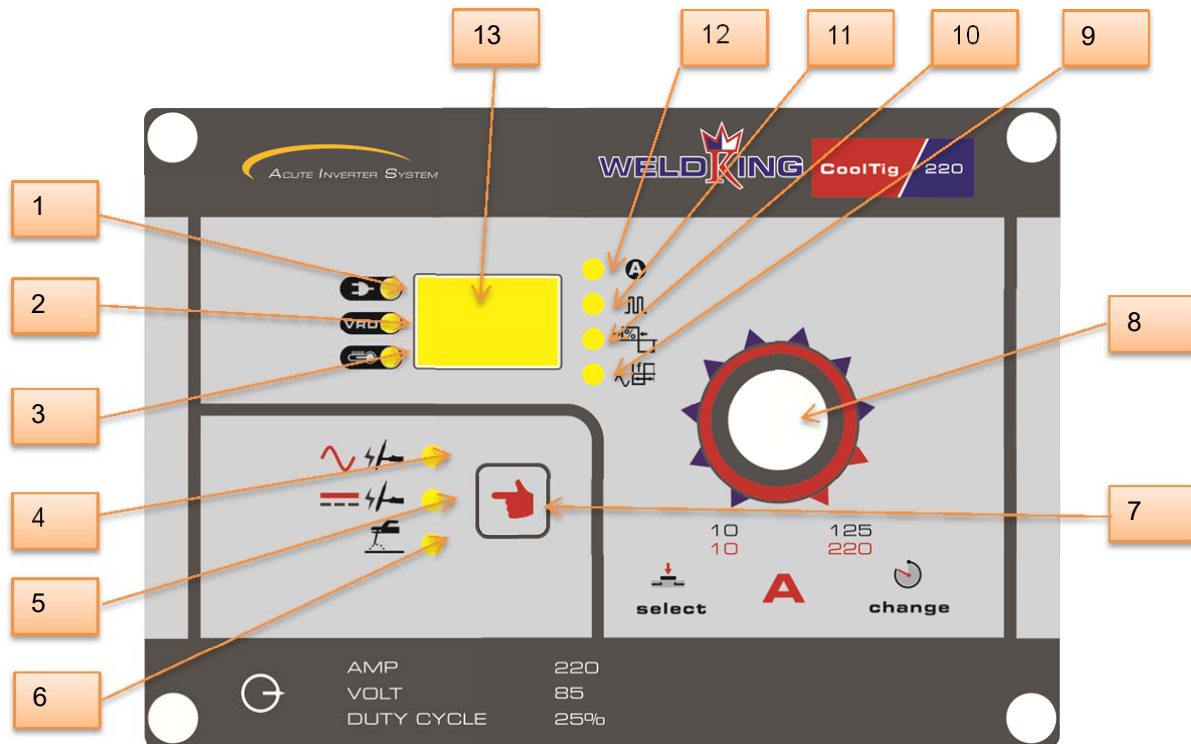
CAUTION! Use shortest cable possible. Turn off power before connecting to weld output terminals!

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

Table 4.2

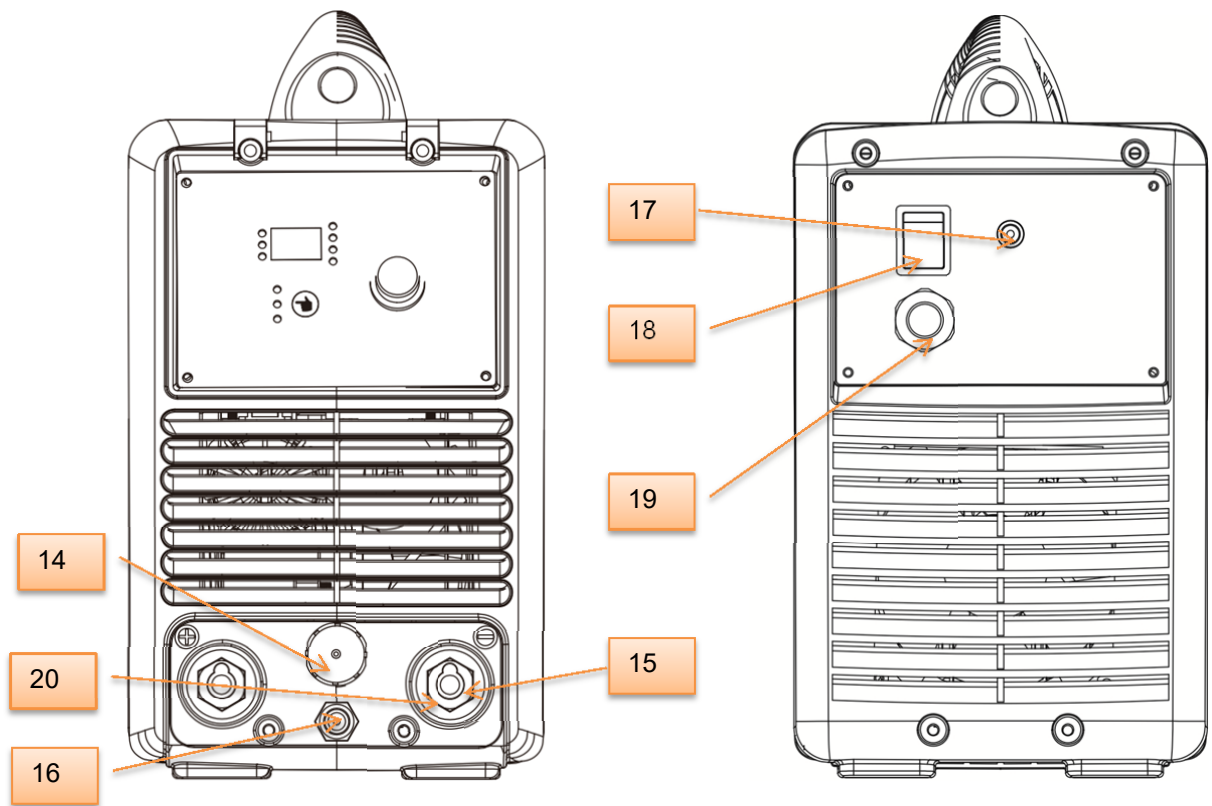
SECTION 5 OPERATION

5-1. Power source panel layout and description



- | | |
|-------------------------------------|---|
| 1. Power indication light | 9. AC frequency (60-160Hz) |
| 2. VRD indication light | 10. AC balance (60%-90%) |
| 3. Protection indication light | 11. Pulse on/off and frequency (0.5-20Hz) |
| 4. AC TIG with HF | 12. Current pre-set |
| 5. DC TIG with HF | 13. Welding current meter and parameter value display (TIG/STICK) (digital) |
| 6. DC STICK | |
| 7. Welding process selection button | |
| 8. Parameters adjust knob | |

Figure 5.1



14. 12 pin control port

15. Negative output connect to torch

16. Gas outlet to torch

17. Gas inlet

18. Main switch

19. Power cord

20. Positive output connect

Figure 5.2

5-2. Operation(TIG)



USE SINGLE PHASE 208V/230V POWER SUPPLY.

5-2.1. Always use DCEN (electrode connects to negative output) for both DC and AC, using pulse or not using pulse.

5-2.2. Connect up the shielding gas, foot pedal, torch and work lead to power source according to figure 4.1, make sure connections are firm and reliable.

5-2.3. Switch on the power source. Select TIG mode (AC or DC) with the process selection button.

5-2.4. Set Welding parameters to desired value, refer to section 5.6: Welding parameter selection chart and section 5.1: front panel layout and description.

DC: used for steel or stainless steel welding.

AC: used for Tig welding aluminum (and its alloys) or magnesium. During the electrode positive half wave the oxide is broken. During the electrode negative half wave, the electrode cools, the workpiece melts and penetration occurs.

Pulse: usually used for thinner plate TIG welding which needs to carefully control the heat input and obtain “scale” type seam. Pulse frequency will influence the heat input, lower frequency have higher heat input in each pulse, so it is preferred for thicker plate. In the same time, lower frequency need high welding speed otherwise the interval between the melding nut will too large and deteriorate the seam strength.

5-2.5. Press parameter adjust knob to select and dial the knob to change following TIG parameters:

A Welding current pre-set (default 100A). The display value of digital current meter will change when you turn the parameter adjust knob to pre-set the parameters. And during welding, the amperage meter will reflect actual welding current output.



Pulse frequency (0.5-20Hz, default off): turn knob to far-left until “OFF”

displayed in the left meter to turn the pulser off.



AC balance (60-90%, default is 75%): percentage of time polarity is electrode negative. The electrode positive cycle insures that the aluminum oxide is thoroughly removed, allowing the electrode negative cycle a thorough penetration of the base metal.



AC frequency (60Hz-160Hz, default 90Hz): AC frequency controls bead width, lower AC frequency gets wider weld bead/ puddle gets wider. As AC frequency increases, weld bead/puddle becomes narrower and the arc becomes more focused, which can allow travel faster.

5-2.6. Press down parameter adjust knob and hold for 2-3 seconds and dial the knob to choose 2T or 4T, and press the knob again to confirm.

2T: Pressing the torch trigger will start arc with setting current. releasing the torch trigger will stop welding.

4T: Pressing the torch trigger will start arc at 10A start current, releasing the torch trigger will increase the current to setting current, pressing the trigger again will reduce the current to 10A, and releasing the trigger will stop welding.

* **2T/4T** feature is not available at machines with serial no 31609060315 to 31611074146.

5-2.7. Turn on the gas valve on the torch; adjust gas volume to 3-5L/MIN. check if there is gas leaking.

5-2.8. High frequency start: Hold the torch and keep tip of Tungsten electrode 2-3 mm above the work piece, and tilt 20-30 ° to vertical direction. Aim Tungsten electrode to the welding seam. Press torch trigger to strike arc.

5-2.9. After arc is ignited, move the torch along seam evenly. Fine tune the welding parameter to obtain exquisite welding seam.

5-2.10. After finish operation, turn off the gas valve. At the end, turn off welding power source and wall switch.

5-3. Operation(STICK)



USE SINGLE PHASE 208/230V POWER SUPPLY.

5-3.1.DCEP (electrode connect to positive output) is most common used connection for STICK welding. In some case, DCEN or AC connection is required according to the specification of the electrode used.

5-3.2.Connect up the electrode holder, earth lead to power source according to section 4.3: STICK welding connection diagram, make sure connections are firm and reliable.

5-3.3.Switch on the power source. Select STICK mode with the process selection control.

5-3.4.Set Welding parameters to desired value, refer to section 5-6: Welding parameter selection chart and section 4-1: front panel layout and description.

5-3.5.Press down parameter adjust knob and hold for 2-3 seconds, the VRD light will turn on. Dial the knob to choose VRD on or off, and press the knob again to confirm.

VRD stands for “voltage reduction devices”. When VRD is turned on the maximum unloaded open circuit voltage across the output terminals of the welder reduces to a safe voltage (15 VDC). VRD will sense when the electrode contact with work piece and turn the welder to full output to strike the arc. When the electrode is removed from the workpiece then the VRD will turn the output of the welder back to a reduced output state.

5-3.6.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.

5-3.7.At the end, turn off welding power source and wall switch.

5-4. Operate with remote current control device connected (TIG only)

The machine can connect to foot pedal (part no. 07002510) or torch with remote current control through 12pin control receptacle at the front panel. Machine will

automatically sense and identify the devices when connected. All remote controls work at TIG mode only.

The maximum current remote control can adjust is limited to the current setting at machine. If you want to use panel to set the welding current while connecting to a remote current control torch, turn the current potentiometer in torch to max position, then you can adjust welding current by panel control.

5-5. Short circuit protection while welding

- **TIG:** After the welding arc has established, if the tungsten electrode touches the work the current will automatically drop to 0A to prolong the life of tungsten and reduce the contamination to the work piece.
- **STICK:** If the electrode touches the work for more than two seconds the welding current will drop to 0A.

5-6. Welding Parameter selection chart

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

5-6.1.TIG welding parameter

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 5.1

5-6.2.STICK welding parameter

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 5.2

5-7. Torch /Foot pedal control connection receptacle (12 pins) (TIG)

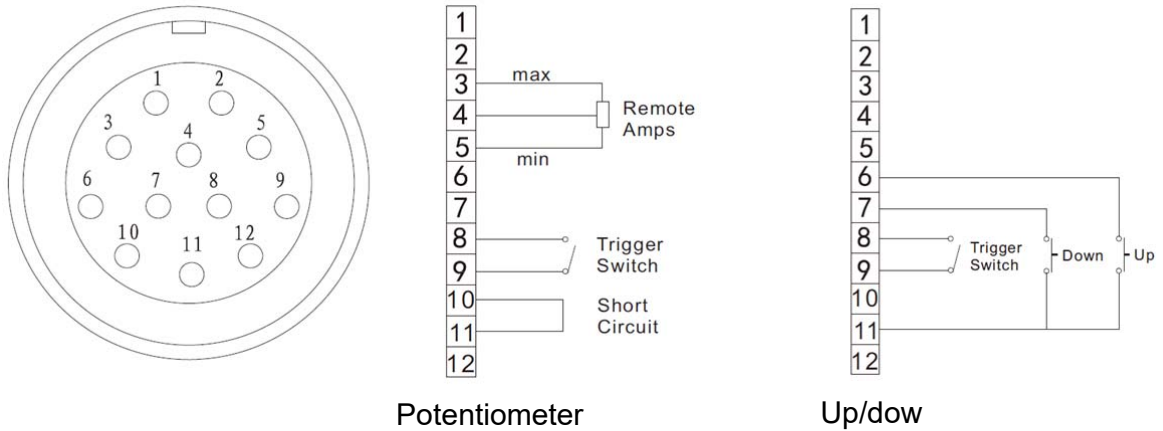


Figure 5.3

Pin	Foot pedal	Switch torch	Remote current torch	Up-down torch
1	Short with 2	-	-	-
2	Short with 1	-	-	-
3	Potentiometers +	-	Potentiometers +	-
4	Potentiometer Wiper	-	Potentiometer Wiper	-
5	Potentiometers -	-	Potentiometers -	-
6	-	-	-	up
7	-	-	-	down
8	Trigger switch	Trigger switch	Trigger switch	Trigger switch
9	Trigger switch	Trigger switch	Trigger switch	Trigger switch
10	-	-	Short with 11	-

11	-	-	Short with 10	-
12	-	-	-	-

- : Not used

Table 5.3

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 pr7
			Main switch malfunction	Check switch, replace if necessary
2	Cooling fan stops to rotate after machine has worked a period	Power indication lamp on	Fan circuit malfunction	Check fan circuit
			Fan failure	Check fan, replace if necessary
			The start capacitor of fan damaged	Change capacitor
		Power indication lamp off	See No. 1	
3	protection light on		Work excess the rate duty circle	Use under rate duty circle

		Input voltage is too high or too low	Use under rated input voltage
		Abnormal current in the main circuit	Check and repair the main circuit and drive PCB Pr6
4	No AC output while selecting "AC"	Faulty power supply PCB	Check, repair or replace
		Faulty inverter drive PCB	Check, repair or replace
		Faulty IGBT module	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
8	No gas flow out after pull the gun trigger	Contactor closed	Input voltage is too low	Use rated input voltage
			Gas pressure not enough	Check gas pressure
			Poor gas hose connection	Check gas connection
			Solenoid valve failure	Check and replace Solenoid valve
			Gas passage problem	Check and repair the gas passage
			Torch gas hose problem	Check and repair torch cable
			Gun trigger failure	Check gun trigger
	Contactor did not close	Control circuit failure	Replace circuit board	
		Loose contactor plug	Check contactor plug	

		Contactor poor contact	Replace contactor
		Control transformer failure	Replace transformer
9	Gas flows all the time	Foreign object inside the valve	Remove
		Solenoid valve is damaged	replace
10	Wall breaker jump	Rectifier short circuit	Check and replace
		Main transformer short circuit	Check and replace
		Control transformer short circuit	Check and replace
		Solenoid valve short circuit	Check and replace

		Cooling fan short circuit	Check and replace
11	The welding current cannot be adjusted	The welding current potentiometer on the front panel loose connection or failure	Repair or change the potentiometer

Table 6.1

6-2. TIG/STICK welding trouble shooting

No.	Problem	Cause	Solution
12	Erratic or improper weld output.	Wrong cable size	Choose the right cable size
13	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
14	Failure of arc Spark on the	Gas hose not installed	Connect the gas hose

to ignite or does not ignite properly	HF igniting board when pull the trigger.	properly leaking happen in gas route, gas mixed by air	firmly and check possible leaking in gas route
		Welding cable broken or poor contact.	Check the cable and connection
		Earth cable broken or poor contact	Check the cable and connection
		Weldking cable too long	Use proper length welding cable
		Dirt or oil in the workpiece	Clean workpiece surface
		Tungsten tip too far away from workpiece	Reduce the distance to about 3mm
	No spark on the HF igniting board when pull the trigger.	HF ignition PCB broken	Change HF ignition PCB
		The distance between the HF discharger poles is too close.	Adjust distance to about 1.5 mm
		Fuse melt or poor contact	Check and repair
		Control circuit board failure	Check and repair the circuit board

			AC Contactor failure	Check, repair, replace
			Gun trigger or control cable broken	Check, repair, replace
			Control transformer failure	Check, repair, replace
			Main transformer failure or poor contact	Check, repair, replace
15	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 2.3
			Electrode selection is not proper	See Table 3.2
			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
16	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

6-3. Error Code

Error type	Error code	Description	light status
Thermal relay	E01	Over-heating (1st thermal relay)	Yellow light (thermal protection) always on
	E02	Over-heating (2nd thermal relay)	Yellow light (thermal protection) always on
	E03	Over-heating (3rd thermal relay)	Yellow light (thermal protection) always on
	E04	Over-heating (4th thermal relay)	Yellow light (thermal protection) always on

	E09	Over-heating (Program in default)	Yellow light (thermal protection) always on
Power source	E10	Electric phase loss	Yellow light (thermal protection) always on
	E11	No water	Yellow light (lack water) always on
	E12	No gas	Red light always on
	E13	Input voltage low	Yellow light (thermal protection) always on
	E14	Input voltage high	Yellow light (thermal protection) always on
	E15	Current over load	Yellow light (thermal protection) always on
	E16	Wire feeder over load	
	Switch	E20	Button faulty on operating panel when switch on the machine
E21		Other faulty on operating panel when switch on the machine	Yellow light (thermal protection) always on
E22		Torch faulty when switch on the machine	Yellow light (thermal protection) always on
E23		Torch fault during normal working process	Yellow light (thermal protection) always on
Accessories	E30	Cutting torch disconnected	Red light blink
	E31	Water cooler disconnected	Yellow light (lack water) always on
Communication	E40	Connection problem between wire feeder and power source	
	E41	Communication error	

Table 6.4

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
<p>Replace unreadable labels.</p> <p>Clean spatter inside the nozzle when continuously use the machine.</p> <p>Check and change broken parts in the torch to avoid damage to the torch and machine.</p> <p>Check the function of all switches.</p> <p>Check if the fan rotates properly and if there is air venting out from back of the machine.</p> <p>Pay Attention to the abnormal vibration, noise, smell and gas leakage during operation.</p> <p>Check if the welding cables are over heated.</p> <p>Check if the cable connections are over</p>	<p>Blow out with dry clean pressure air or vacuum inside machine, especially transformer coil and power component.</p> <p>Check the electric connection of input/output bar to avoid bad contact caused by loose or rusted screw.</p>

heated.	
Check if the cable is connected firmly and properly, if it is broken and cause bad insulation.	
Check the cover grounded properly.	

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 perform welding 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 welding machine is over current or over heat, and automatic protection will be triggered. Stop welding immediately and wait until welding machine 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 welding machine during welding!

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

SECTION 8 PARTS LIST

Item	Order No.	Description	Note	Qty
1	8.068RM.927	Rear penal	FLAME ARC200	1
2	7.232.739	Toggle switch (red)	25A/250V	1
3	7.720.509	Fan		1
4	W.423RM.892-1	MUR assembly		1
5	W.422RM.891	IGBT assembly		1
6	WP.496RM.505-D	TIG160 CDC control PCB		1
7	W.496RM.499-A	TIG 200 AC/DC PFC MV display PCB		1
8	8.069RM.957-A	TIG200 multifunction large connection front penal	HZ	1
4-1	7.421.116	Quick restore diode		6
4-2	7.425.555-B	single transistor IGBT module		4
4-3	7.425.840	single transistor IGBT module	TIG 200EP AC/DC PFC use with S.006RM.561-E	3
4-4	W.496RM.892-D-1	TIG 200E AC/DC PULSE secondary inverter PCB. Change to U transformer		1
5-1	7.411.024	Rectifier bridge		1
5-2	7.425.840	single transistor IGBT module		4
5-3	W.496RM.891-C	TIG200ACDC-E primary inverter PCB with EMC		1

Table 8.1

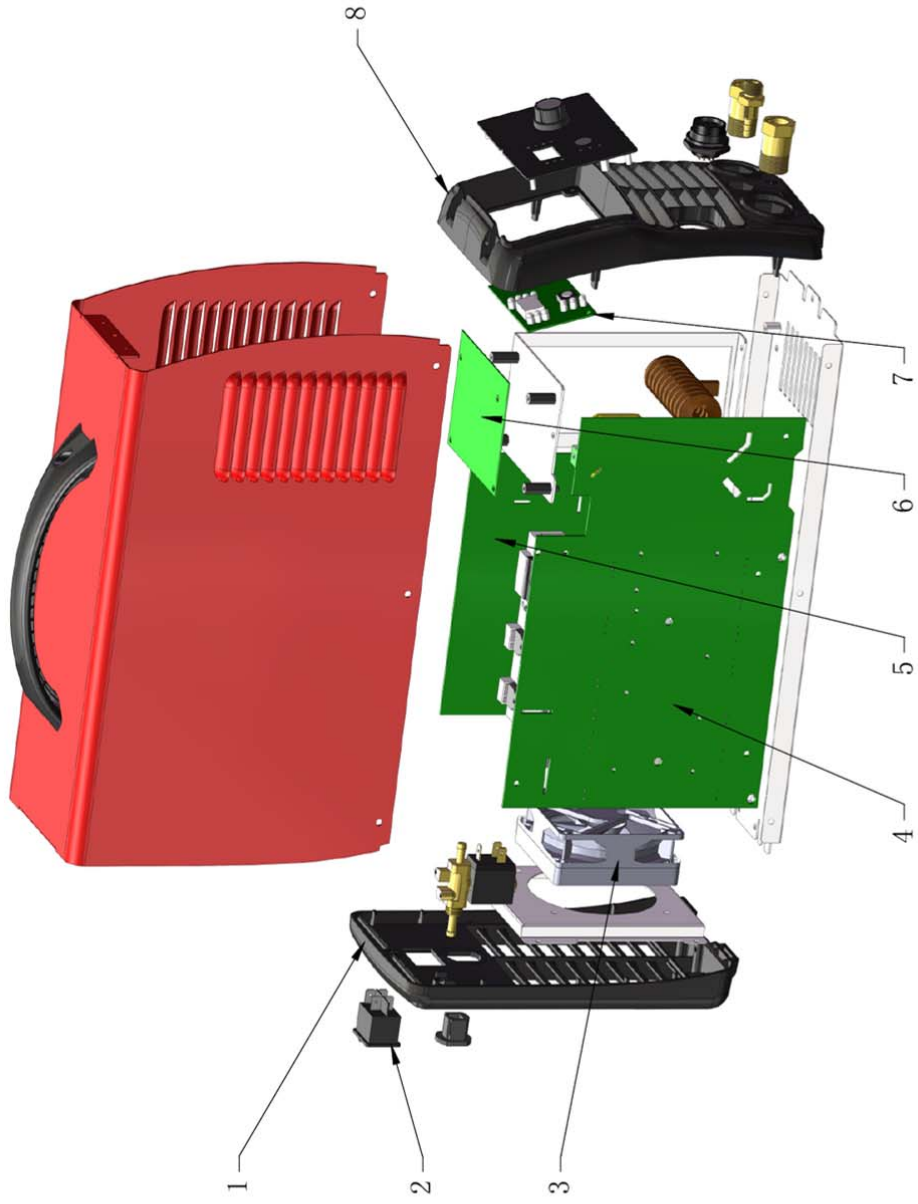


Figure 8.1

TIG torch

WeldKing® PRO17, part no. WAT31100

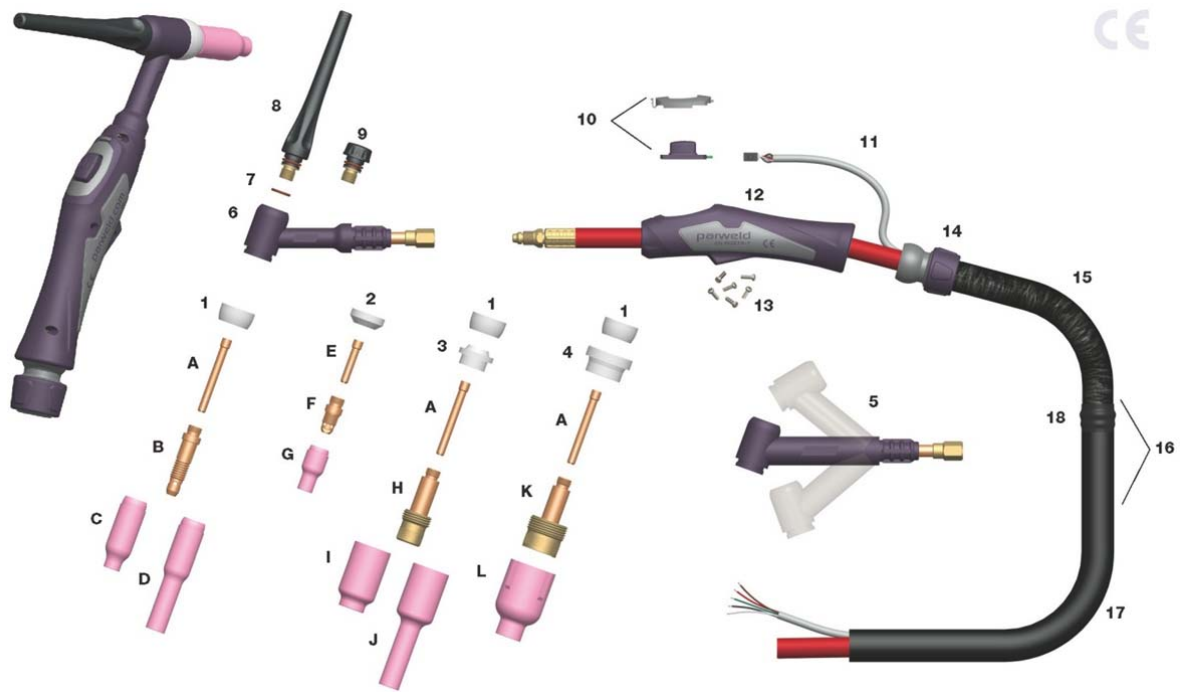


Figure 8.2

Item	Description	Order No.
1	Cup gasket	18CG
2	Cup gasket for stubby collet body	18CG20
3	Gas lens insulator(use with 18CG)	54N01
4	Insulator large diameter gas lens(use with 18CG)	54N63
5	Torch head flexible	PRO17FX
6	Torch head include cup gasket	PRO17
7	Back cap O ring	98W18

8	Back cap long	PRO57Y02
9	Back cap short	PRO57Y04
10	Momentary switch kit(default)	PRO1MS
11	Connector+leadsx4m/12.5ft	PROSWL4
12	Pro-Grip™ Tig Handle Small	PROH100
13	Screw pack	PROSP
14	Knuckle joint c/w lock nut	PROKJ100
15	Leather cover x0.8m/2.6ft	PROLC100-08
16	Complete cover assembly x4m/12.5ft	PROCO100-40
17	Neoprene Cover x 3.2m/10.5ft	PRONCL-32
18	Sheath joint repair kit	PROJK100

Table 8.2

Consumables

Item	Description	Order No.
Standard collet		
A	Collet 0.020",Φ 0.5mm bore	10N21
	Collet 0.040",Φ 1.0mm bore	10N22
	Collet 1/16",Φ 1.6mm bore	10N23
	Collet 3/32", Φ 2.4mm bore	10N24
	Collet 1/8",Φ 3.2mm bore	10N25
	Collet 5/32",Φ 4.0mm bore	54N20

Standard collet body		
B	Collet body 1/8", Φ 3.2mm bore	10N29
	Collet body 0.020", Φ 0.5mm bore	10N30
	Collet body 0.040", Φ 1.0mm bore	10N31
	Collet body 1/16", Φ 1.6mm bore	10N32
	Collet body 3/32", Φ 2.4mm bore	10N28
	Standard collet body 5/32", Φ 4mm bore	406488
Standard ceramic cup		
C	Standard ceramic cup 1/4", Φ 6mm bore	10N50
	Standard ceramic cup 5/16", Φ 8mm bore	10N49
	Standard ceramic cup 3/8", Φ 10mm bore	10N48
	Standard ceramic cup 1/2", Φ 13mm bore	10N47
	Standard ceramic cup 5/8", Φ 16mm bore	10N46
	Standard ceramic cup 3/4", Φ 19mm bore	10N45
	Standard ceramic cup 1/4", Φ 6mm bore	10N44
Standard long ceramic cup		
D	Long ceramic cup 5/16", Φ 8mm bore	10N49L
	Long ceramic cup 3/8", Φ 10mm bore	10N48L
	Long ceramic cup 7/16", Φ 11mm bore	10N47L

Stubby series collet		
E	Stubby Collet 0.020", Φ 0.5mm bore	10N21S
	Stubby Collet 0.040", Φ 1.0mm bore	10N22S
	Stubby Collet 1/16", Φ 1.6mm bore	10N23S
	Stubby Collet 3/32", Φ 2.4mm bore	10N24S
	Stubby Collet 1/8", Φ 3.2mm bore	10N25S
Stubby collet body		
F	Stubby Collet body 0.020"-1/8", Φ 0.5mm- 3.2 mm bore	17CB20
Stubby standard ceramic cup		
G	Standard ceramic cup 1/4", Φ 6mm bore	13N08
	Standard ceramic cup 5/16", Φ 8mm bore	13N09
	Standard ceramic cup 3/8", Φ 10mm bore	13N10
	Standard ceramic cup 7/16", Φ 11mm bore	13N11
	Standard ceramic cup 1/2", Φ 13mm bore	13N12
	Standard ceramic cup 5/8", Φ 16mm bore	13N13
Gas lens body		
H	gas lens body 0.020", Φ 0.5mm bore	45V29
	gas lens body 0.040", Φ 1.0mm bore	45V24
	gas lens body 1/16", Φ 1.6mm bore	45V25

	gas lens body 3/32", Φ 2.4mm bore	45V26
	gas lens body 1/8", Φ 3.2mm bore	45V27
Standard gas lens cup		
I	Standard gas lens cup 1/4", Φ 6mm bore	54N18
	Standard gas lens cup 5/16", Φ 8mm bore	54N17
	Standard gas lens cup 3/8", Φ 10mm bore	54N16
	Standard gas lens cup 7/16", Φ 11mm bore	54N15
	Standard gas lens cup 1/2", Φ 13mm bore	54N14
	Standard gas lens cup 11/16", Φ 17mm bore	54N19
Long gas lens cup		
J	Long gas lens cup 5/16", Φ 8mm bore	54N17L
	Long gas lens cup 3/8", Φ 10mm bore	54N16L
	Long gas lens cup 7/16", Φ 11mm bore	54N15L
Large diameter gas lens body		
K	Large dia gas lens body 1/16", Φ 1.6mm bore	45V116
	Large dia gas lens body 3/32", Φ 2.4mm bore	45V64
	Large dia gas lens body 1/8", Φ 3.2mm bore	995795
Large diameter gas lens cup		
	Large diameter gas lens cup 1/2", Φ 15mm Bore	57N74

L	Large diameter gas lens cup 3/8", Φ 10mm Bore	57N75
	Large diameter gas lens cup 3/4", Φ 19mm Bore	57N87
	Large Dia Gas Lens Cup 5/89/16mm Bore	53N88

Table 8.3

NOTES

WELDKING® CoolTig220 power source

SECTION 9 ELECTRIC DIAGRAM

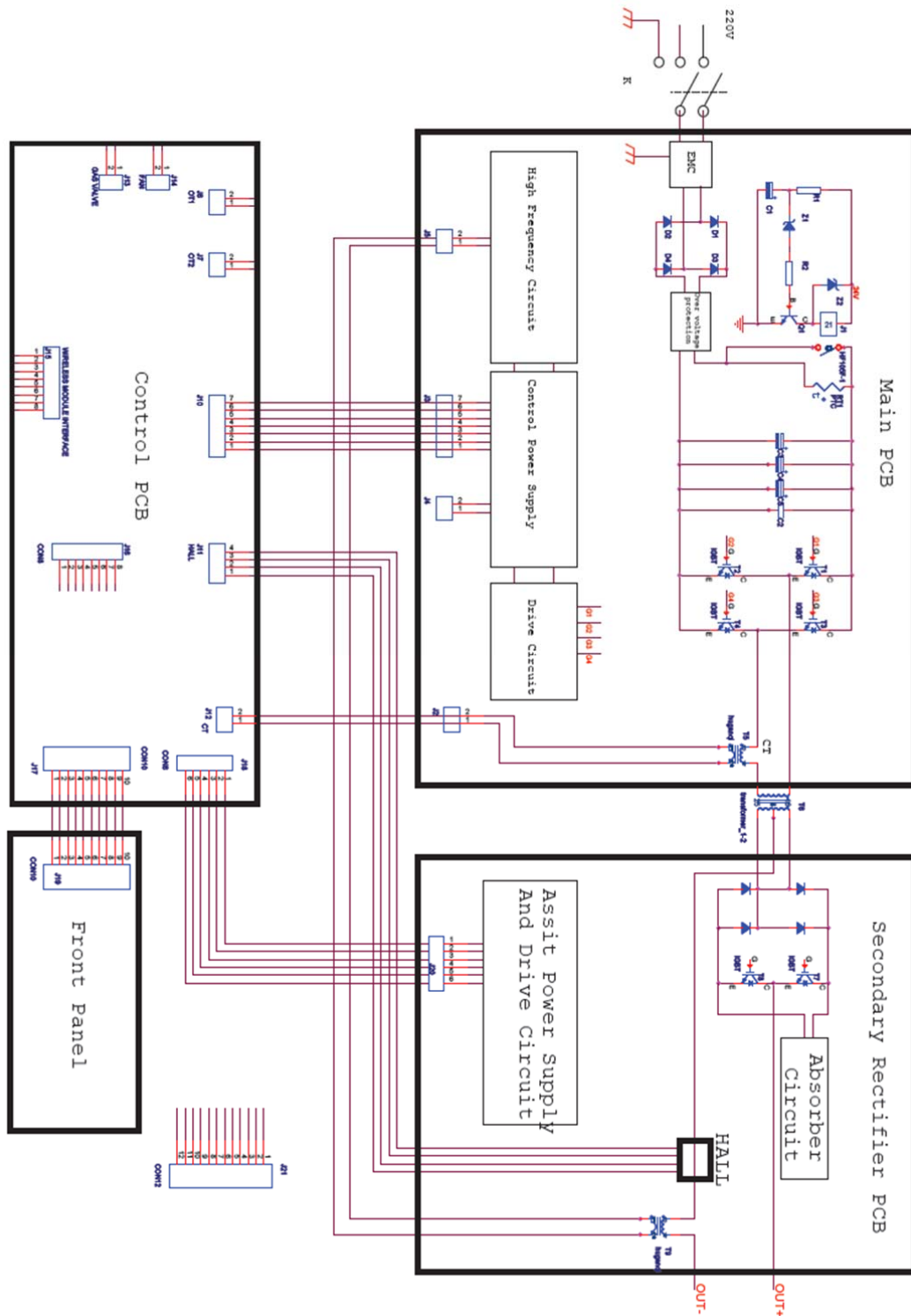


Figure 9.1

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 or disclose customer's private information to any third party and will not send promotion material to the customer.

Find your nearest warranty center at:

www.weldking.com/servicelocations.aspx

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