



Process: Plasma cutting
Plasma gouging

Plasma Arc Cutting Machine

Date of purchase: _____

Machine Number: _____

Where purchased: _____

THUNDERCUT 65 OWNER'S MANUAL

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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.



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

- ▲ **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.

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.**

- Install and earth(ground) the welding or plasma cutting unit in accordance with applicable standard
- 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.

- 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-le-champ 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.

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

- 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 sont normalement arborées 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.

OVER USE 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 electricien 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:

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

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

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 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 précédentes

1-5. User responsibility

This equipment will perform in conformity with the description thereof contained in this manual and accompanying labels and/or inserts when installed, operated, maintained and repaired in accordance with the instructions provided.

This equipment must be checked periodically. Malfunctioning or poorly maintained equipment should not be used. Parts that are broken, missing, worn, distorted or contaminated should be replaced immediately.

Should such repair or replacement become necessary, WeldKing™ recommends that a telephone or written request for service advice be made to the Authorized Distributor from whom it was purchased.

This equipment or any of its parts should not be altered without the prior written approval of WeldKing™.

The user of this equipment shall have the sole responsibility for any malfunction which results from improper use, faulty maintenance, damage, improper repair or alteration by anyone other than the WeldKing(tm) or a service facility designated by WeldKing™.

SECTION 2 INSTALLATIONS

2-1. ThunderCut 65 plasma cutting machine and gun specifications

THUNDERCUT 65 Cutting machine

Type	THUNDERCUT 65
Power supply	208/230V/60Hz
Phase	1
Rated input power(Kva)	8.4
Open circuit voltage(v)	280
Amperage range(A)	25-70, Continuously Adjustable
Working voltage(V)	90-108
Rated Duty cycle (%)	60
Rated working current(A)	65
Gas Delay time(s)	2-15
Rated cutting thickness(mm)	Mild steel:25.4(1 inch) at 350mm/min(14 IPM) 12.7(1/2 inch) at 1250mm/min(50 IPM) Severance:38mm(1 1/2 inch) at 100mm/min(4 IPM) Pierce: 15.8mm(5/8in)
Gouging Capacity	6 pounds(2.8kg)/hr
Compress air Pressure(kg/cm²)	3.0-5.0(42.6-72 psi)
Gas Type	Air or Nitrogen
Gas Quality	Air: Clean, dry, oil free Nitrogen: 99.995% pure
Dimension(HxWxD)(CM)	57x27x55(22.4inX10.6inX21.7in)
Weight(KG)	33(73 lbs)

Table 2.1

S75 Plasma cutting gun

Rated current(A)	70A, DC
Rated Duty cycle (%)	60% at 70A, 100% at 50A
Cool style	Air cooled
Maximum Air pressure(Bar)	5 (72psi)
Air consumption (l/min)	150
Cable length(M)	6(20ft)
Connection	Centre connection
Detailed gun specification please see separate gun manual	

Table 2.2

 CAUTION WORKING LONGER THAN RATED DUTY CYCLE CAN DAMAGE GUN AND VOID WARRANTY.
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2-2. Connection diagram

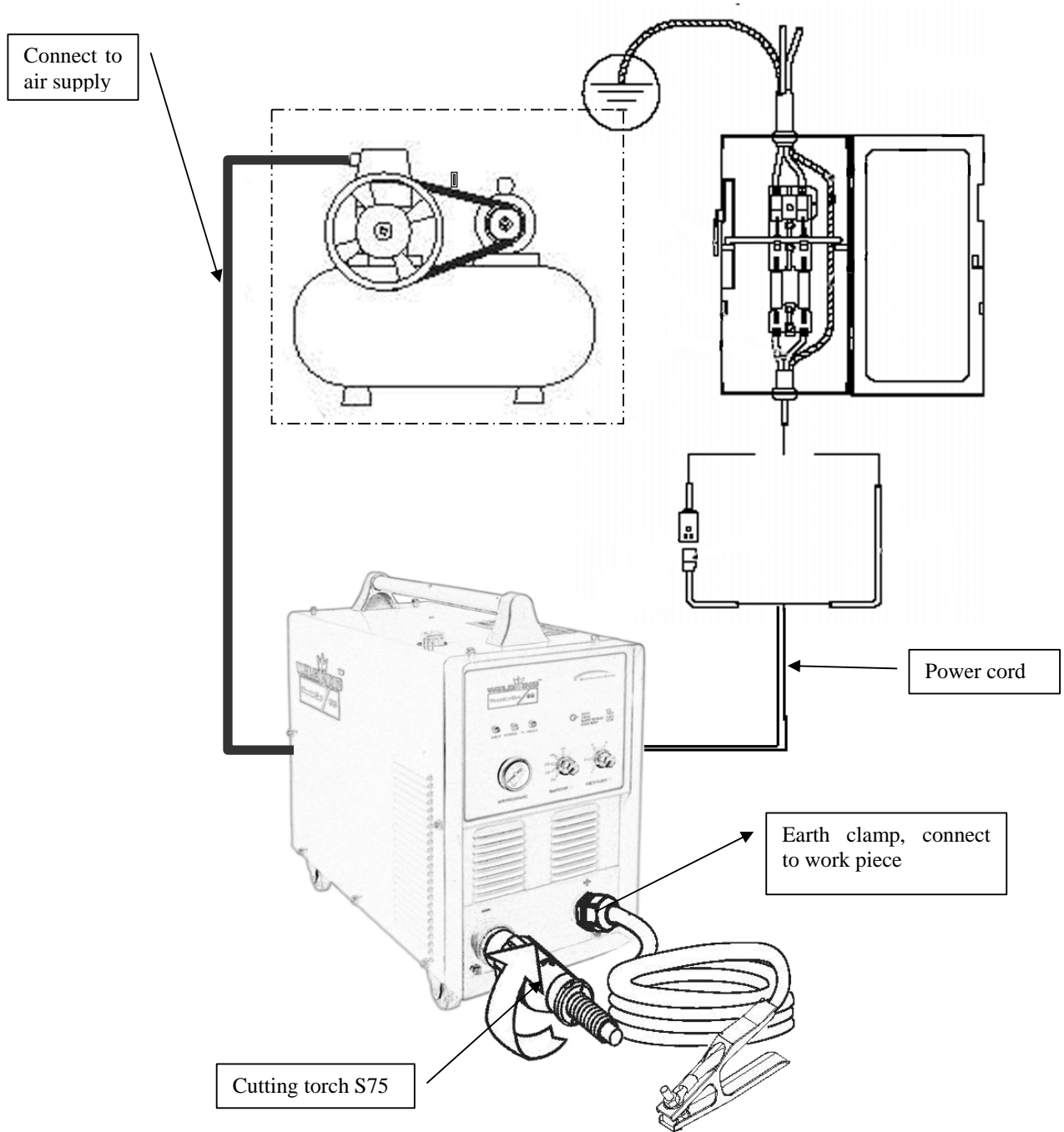



Figure 2.1

2-3. Install procedure

- 2-3.1. Plasma cutter should be installed in a stable position and with good ventilation. Avoid direct sun outdoors. Avoid transport in invert or side position.
- 2-3.2. Connect machine with 208/230V single phase power supplies.

	CAUTION SHOCK HAZARD: ALWAYS TURN OFF THE POWER, UNPLUG THE CORD AND WAIT 5 MINUTES BEFORE REMOVE AND POWER SUPPLY COVER. IF THE POWER SUPPLY IS DIRECTLY CONNECTED TO A LINE DISCONNECTION, PLACE SWITCH IN THE OFF POSITION. IN THE US, USE A “LOCK-OUT/TAG-OUT” PROCEDURE UNTIL THE SERVICE OR MAINTENANCE WORK IS COMPLETE. IN THE OTHER COUNTRIES, FOLLOW APPROPRIATE LOCAL OR NATIONAL SAFETY PROCEDURE.
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- 2-3.3. Be sure machine is well grounded.
- 2-3.4. Connect S75 plasma gun. Attach the male connector (torch side) to the female one (machine side). Make sure that the positioning pin aligns with the corresponding notch, then use enclosed tool (D) to disengage the anti-rotation device by pressing it on proper hole (C). To disconnect torch also need press enclosed tool to the hole. Finally, remove the tool and continue to fasten the ring until hear clicking. See figure 2.2.

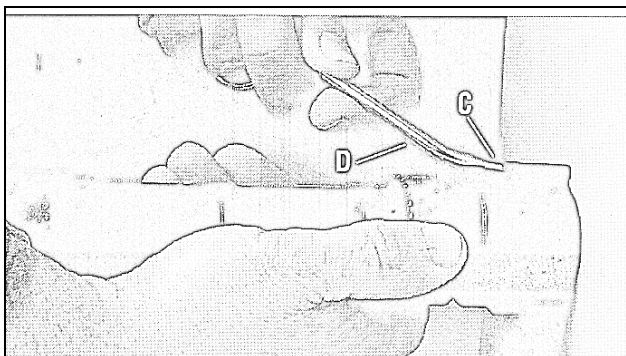


Figure 2.2

- 2-3.5. Connect earth cable, air hose according to connection diagram.
- 2-3.6. Gas supply can be either air or Nitrogen. A high pressure regulator must be used on either type of gas and must be capable of delivering 155 l/min at a pressure of 5 bar (72psi) to the filter.
- 2-3.7. Use a 3/8 inch (9.5mm) ID inert gas hose to connect the gas supply (air or nitrogen) to the power supply filter. To connect the hose, install a 1/4 NPT nipple to the filter as show in Figure 2.1. Apply liquid pipe sealant to the threads to ensure a leak-free installation. **Never use Teflon tape when installing the nipple or adapters. Bits of tape can break off and enter the air line and harm the pressure regulator, pressure switch and valve.**
- 2-3.8. Use a three-stage coalescing filtration system as shown in figure 2.3 when site conditions introduce moisture, oil or other contaminants into the air line.

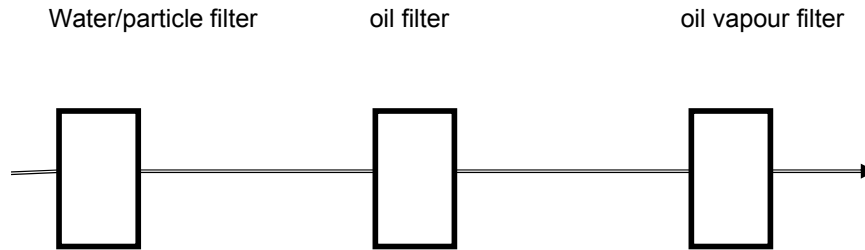


Figure 2.3 Three stage coalescing filtration system

2-4. 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	60
Input Amperes at rated output(A)	33	30
Max recommended standard fuse Rating in Amperes		
Circuit breaker, time delay	45	40
Normal operation	50	45
Min input conductor size in AWG	10	10
Max Recommended input conductor Length(M)	36	36
Min Grounding conductor Size in AWG	10	10

Table 2.1

SECTION 3 OPERATION

CAUTION BEFORE OPERATING THIS MACHINE, READ THE SAFETY SECTION OF THIS MANUAL THOROUGHLY

3-1 Front/Back panel Layout

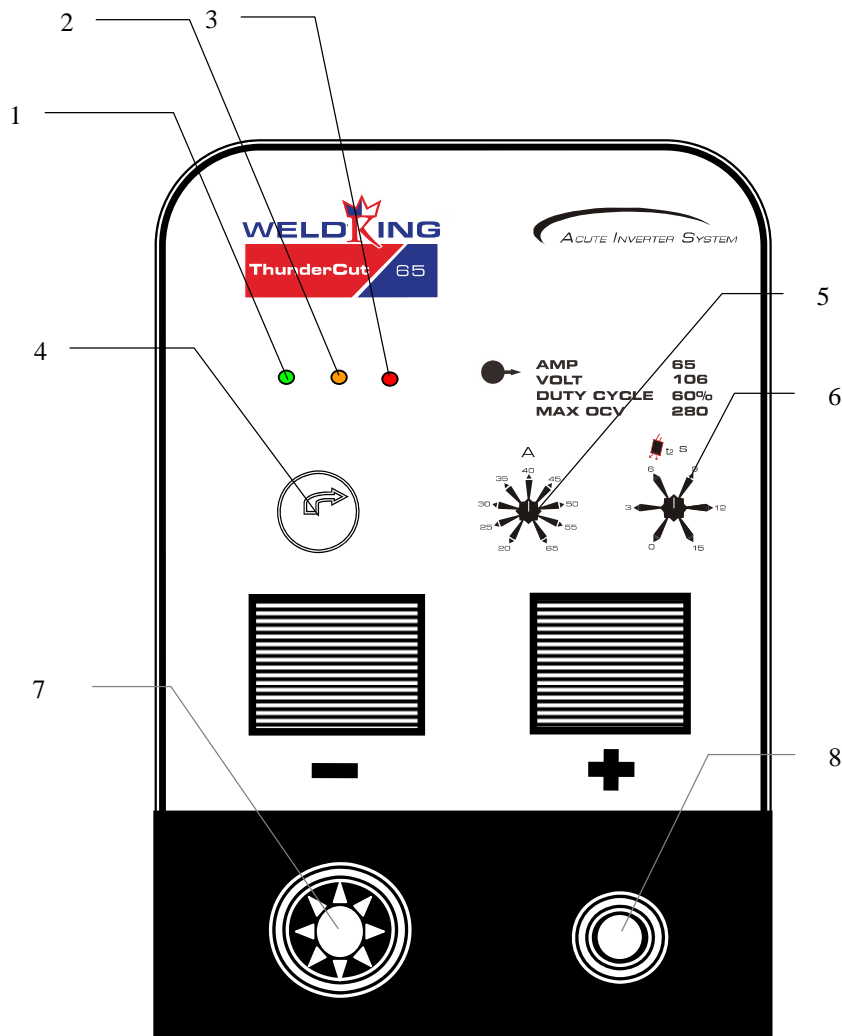


Figure 3.1

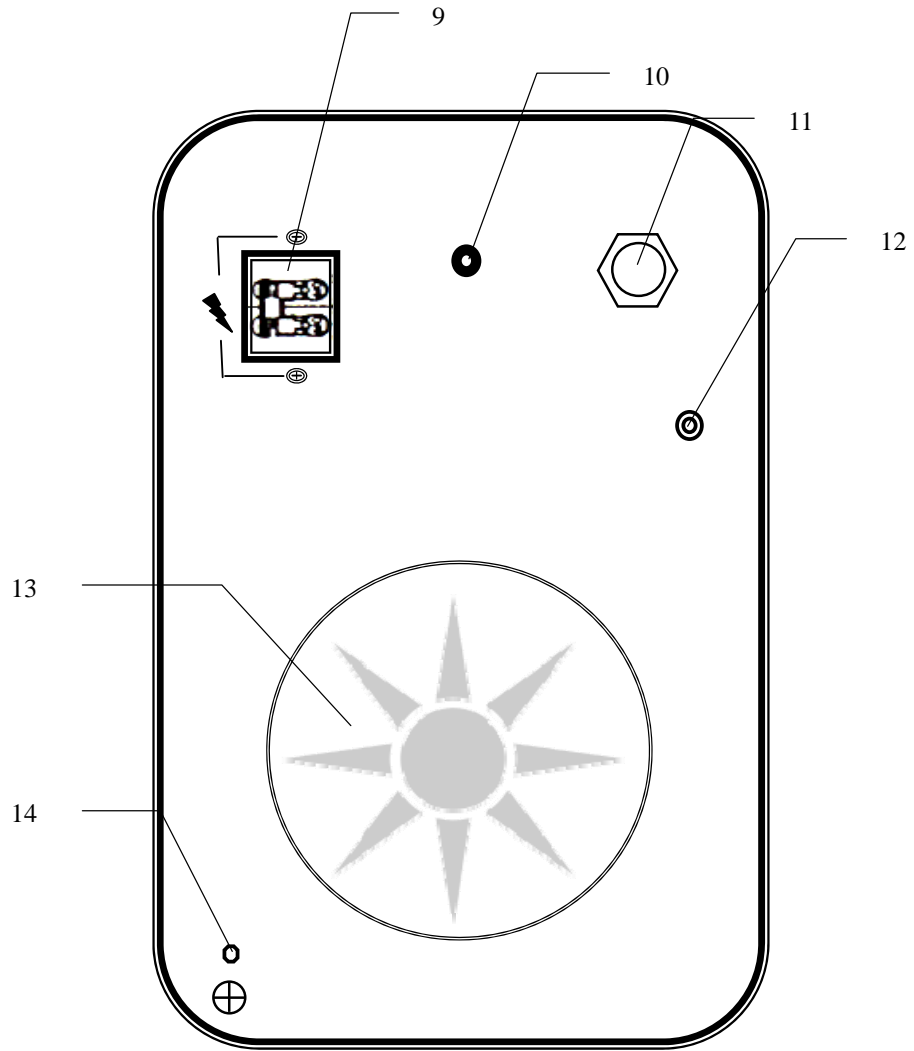


Figure 3.2

- | | |
|-----------------------------------|----------------------------|
| 1. Power indicator | 8. Earth lead terminal |
| 2. Working lamp | 9. Power switch |
| 3. Over-heat protection indicator | 10. Fuse |
| 4. Air Gauge / filter | 11. Power cord |
| 5. Output current adjust knob | 12. Compress air inlet |
| 6. Gas delay adjust Knob | 13. Fan |
| 7. Torch terminal | 14. Common ground terminal |

- 3-1.1 Check the connection of work piece, earth cable, plasma torch, gas cylinder, regulator and hose, make sure they are firm and reliable. **Do not attach earth cable to the portion that will fall away.**

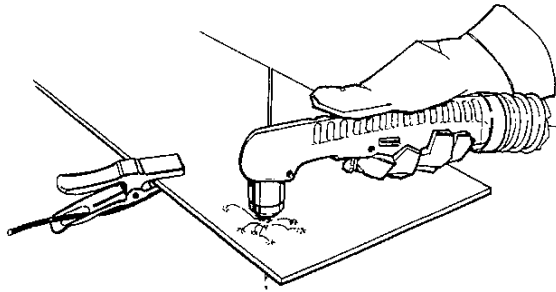


Figure 3.3

- 3-1.2 Verify that the input gas supply pressure is set to 72psi (5kg /cm²). **IF the gas supply pressure lower than 36psi (2.5 kg/cm²), the overheat light (yellow) will illuminate and there will be no power output to the torch.**
- 3-1.3 Pull the regulator cap out, gradually turn regulator cap to adjust gas pressure to 58-72psi (4-5 kg/cm²) and push the regulator cap back in.
- 3-1.4 Switch on the power source. The power light (red) should illuminate. Adjust the cutting current and after cutting delay time knob to desired setting.
- 3-1.5 Hold the torch on the metal (if use spring ring supplied with torch) or keep the tip away from the metal about 2mm, tilt the torch toward cutting direction, this is to blow the melted metal away and is particularly important when cutting thicker material. Make sure that the torch is pointed away from you and the people near you to avoid any danger from sparks and hot metal. **Push the safety trigger at the side of the torch first, then press the switch to start cutting.** The working lamp (green) will illuminate. **Does not fire the pilot arc into air needlessly - doing so cause a significant reduction of the nozzle and electrode life.**
- 3-1.6 After arc starts, hold the torch nozzle at vertical position and watch the arc as it cut along the line. By lightly dragging the shield on the workpiece, you can maintain a steady cut. For straight-line cutting, use any straight edge as a guide.
- 3-1.7 Evenly move the torch in the desired direction, at a speed which will ensure good cut quality. Pulling the torch through the cut is easier than push it.
- 3-1.8 When cutting, make sure that the sparks are coming out of the bottom of the metal. If they are spraying on top of the workpiece, you are moving the torch too fast, or you do not have sufficient power to fully penetrate the workpiece.
- 3-1.9 When the cut is finished, release the torch switch to extinguish the arc.
- 3-1.10 Grate Cutting - For rapid restarts, such as grate or heavy mesh cutting, do not release the torch switch. This avoids the 2 second preflow portion of the cutting cycle.
- 3-1.11 After finish operation, turn off the gas valve. In the end, turn off welding power source and wall switch.

3-2 Recommend Cutting parameter

The settings listed below are just for initial commission of the machine. The parameters can be refined in actual cutting.

Material	Thickness (inches) (mm)		Current (amps)	Maximum travel speed (ipm) (mm/min.)	
Mild steel	26 GA	0.5	25	638	16205
	10 GA	3.4	40	151	3835
	¹ / ₄	6.4	65	132	3353
	³ / ₈	10	65	63	1600
	¹ / ₂	12	65	42	1067
	⁵ / ₈	16	65	31	787
	³ / ₄	19	65	22	559
Aluminum	¹ / ₃₂	0.8	25	610	15494
	¹ / ₈	3.2	40	204	5182
	¹ / ₄	6.4	65	145	3683
	³ / ₈	10	65	74	1880
	¹ / ₂	12	65	51	1295
	⁵ / ₈	16	65	33	838
Stainless steel	26 GA.	0.5	25	631	18027
	14 GA.	1.9	40	221	5613
	¹ / ₄	6.4	65	110	2794
	³ / ₈	10	65	53	1346
	¹ / ₂	12	65	35	889
	⁵ / ₈	16	65	26	660
	⁴ / ₄	19	65	18	457

Table 3.1

SECTION 4 TROUBLE SHOOTING

No.	Problem		Cause	Solution
1	The Overheat lamp(yellow) is flashing all the time		Flashing: Input voltage is too high or too low	Use correct line voltage
			Constant: No Compress gas or Gas pressure is not enough(lower than 36psi)/The machine is too hot	Increase the gas pressure/Wait until machine cool down
2	Power Indication lamp is not illuminate 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
3	Electric leak at the case		Power cord leak	Insulate power cord
			Transformer contact with case	Insulate transformer
			Not grounding properly	Check and redo the grounding
4	Power Indication lamp is on, but arc does not extinguish after release the torch switch		The switch shortcut	Replace switch
			The switch contact terminal shortcut	Re-insulate terminal
			2T/4T switch is in 4T status	Press gun switch again
5	Cooling fan stops to rotate after	Power indication lamp on	Cooling fan circuit malfunction	Check fan circuit
			Cool fan failure	Check fan, replace if

	machine has worked a period			necessary
		Power indication lamp off	See No. 2	
6	Machine does not response after push the start trigger	Trigger shortcut or control cable broken		Replace/re-connect
		Control transformer failure		Replace
		Input voltage is too low		Use rated Input voltage
7	Arc fail to ignite or does not ignite properly	The torch cable open circuit		Re-connect
		Control circuit board failure		Check and repair the circiut board
		Poor contact at earth lead and gun cable		Check and re-connect
		Loose or poor connection with the main power supply link		Check the connetion
		Water in the air compressor or filter		Drain water or Change filter
8	Poor penetration during cutting	Work piece thickness excess the capacity of the machine		Use higher capacity cutter
		Cutting speed is too fast		Slow down
		Torch tilt to much		Adjust angle to verical
		Air pressure is too low or too high		Adjust the pressure
		Consumables are worn		Change consumables

		Line voltage is not stable	Use Voltage stabilizer
9	The arc extinguish suddenly during welding	The cutting speed is too slow	Adjust the speed
		Electrode too far away from work piece surface	Reduce the torch or put torch on the workpiece
		The Nozzle or electrode are faulty	Replace
10	Power supply switch jump	Control transformer short circuit	Check and replace
		Solenoid valve short circuit	Check and replace
		Cooling fan short circuit	Check and replace
		Work excess the rated duty circle	Use under rated duty circle
		Input voltage is too high	Use proper voltage
11	Torch sputters and hisses	The gas filter at the rear of the machine contains excessive moisture	Drain the filter bowl and clean the filter. See MAINTENANCE SECTION.

Table 4.2

If you are unable to fix the problem with your plasma cutting machine by following this basic troubleshooting guide or if you need further assistance:

1. Call your distributor. He will be able to help you, or refer you to an authorized repair facility.
2. Call the company office, which listed in the back of this manual.

SECTION 5 MAINTENANCE

5-1. 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	Bowl Draining and Filter Element Cleaning
<ul style="list-style-type: none"> • Check and change broken electrode and nozzle 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 cutting 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 	<p>Moisture in the torch can cause the torch to sputter and hiss. If moisture is present, purge the gas lines. If moisture builds up in the bowl of the filter, drain the bowl and clean the filter element:</p> <ul style="list-style-type: none"> • Shut off the gas supply and disconnect the gas supply hose from the filter assembly before proceeding. • Remove the cap at the bottom of the filter bowl and turn the knurled drain valve to the right to release water from the bowl. • Unscrew the filter bowl. • Unscrew the filter element. • Clean the filter element with alcohol, and then blow it out with air. Clean the bowl with household soap only. • Replace the filter element and filter bowl. • Reconnect the gas supply hose.

Table 5.1

5-2. Safety precaution

- 5-2.1. Operator must be equipped with mask, gloves and tie the sleeves and collar properly. There should be an arc shield around welding field to protect others from arc shock.
- 5-2.2. Do not weld near flammable, explosive materials or gases.
- 5-2.3. Gas cylinder must be located at a safe and steady place to avoid injury others.
- 5-2.4. Keep finger, hair and clothing away from the rotating fan.
- 5-2.5. The power source must be grounded when welding.
- 5-2.6. Welding machine should not work in a flammable and toxic environment, avoid moisture, rain, and do not directly expose to sun.
- 5-2.7. Periodically maintain the machine and clean the dust inside.

SECTION 6 PARTS LIST

Item	Order NO.	Description	Note	Quantity
1	Y04060004	Indication Lamp	φ 5 /red	1
2	Y04060006	Indication Lamp	φ 5 /yellow	1
3	Y04060005	Indication Lamp	φ 5 /green	1
4A	Y08070002	Knob	PN-21D/Middle	1
4B	Y01430019	Current Potential meter	110 (010) 4.7k	1
5A	Y08070002	Knob	PN-21D/Middle	1
5B	Y01430013	Post flow time potentiometer	WT118 2W 100K	1
6	Y07060003	Quick Receptacle	35-50 cm (black)/ small	1
7	Y07060010	Center connection	FY-0022	1
8	Y21060001	Air gauge/Filter	AFR-2000(Single-coupled)	1
34	Y25050301	Cord clamp	PG21	1
35	Y26100014	Quick gas connector	φ8	1
36	Y12080019	Input cord with molded plug	(CSA)-NEMA#6-50P	1
37A	Y18010011	Fuse	6*30 (2A)	1
37B	Y18020006	Fuse seat	(CSA)-6*30 -15A	1
38	Y08030003	Circuit breaker	DE47-60A / 2P(zhengtai)	1

Table 7.1



Figure 7.1



Figure 7.2

S75 Plasma torch parts breakdown

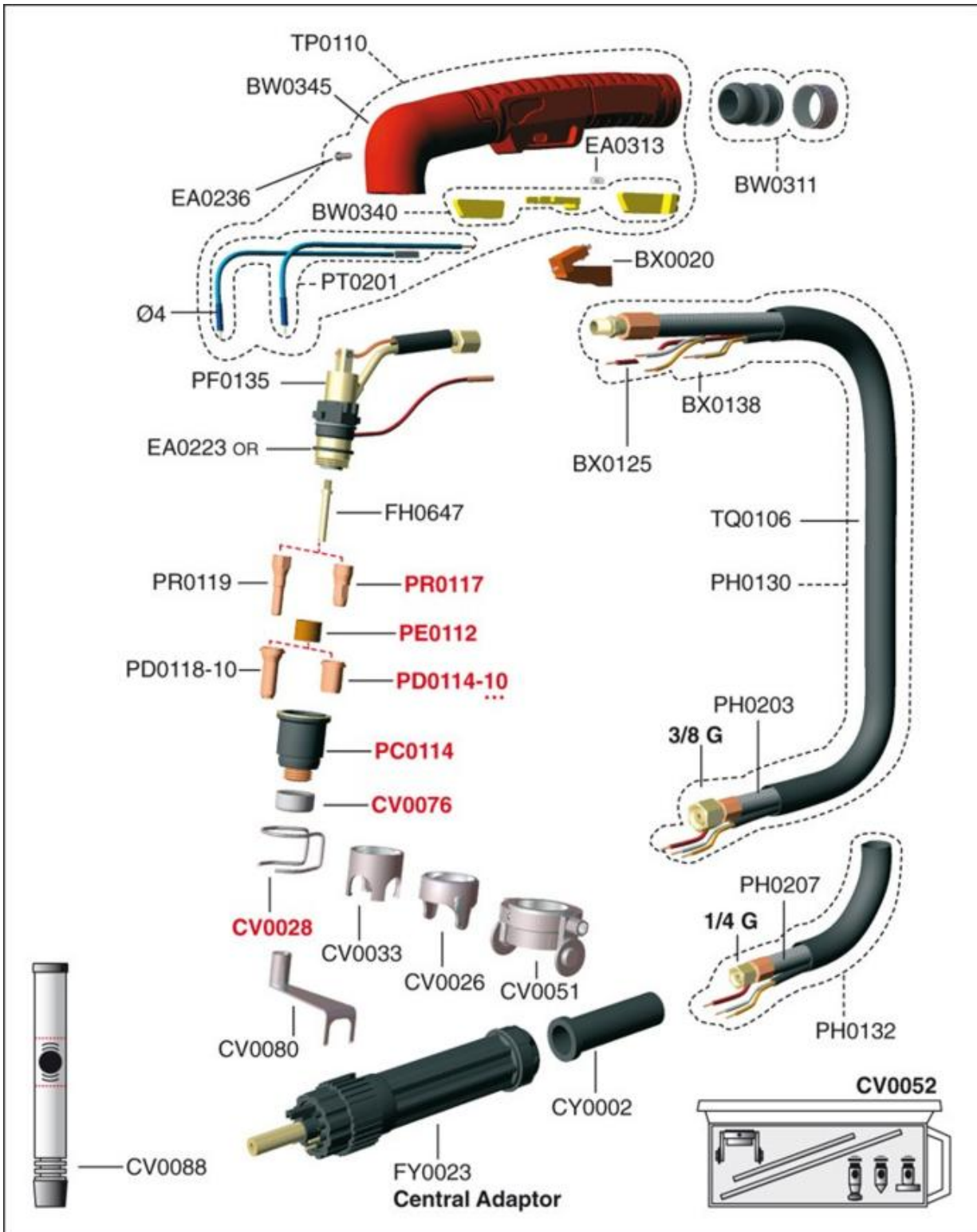


Figure 7.6

Item	Part No	Description
1	PF135	TORCH BODY
	PT180	TORCH BODY KIT
2	CV0026	GUIDE
3	CV0028	GUIDE SPRING
4	CV0033	CROWN SHIELD
5	CV0051	CUTTING GUIDE
6	CV0052	CIRCLE CUTTING GUIDE
7	CV0076	NOZZLE CAP
8	EA0223	O'RING
9	FH0647	DIP TUBE
10	PC0114	NOZZLE
11	PD0114-10	TIP 1.0 MM
12	PD0114-12	TIP 1.2 MM
13	PE0112	SWIRL RING
14	PR0117	ELECTRODE
	PD0118	LONG TIP

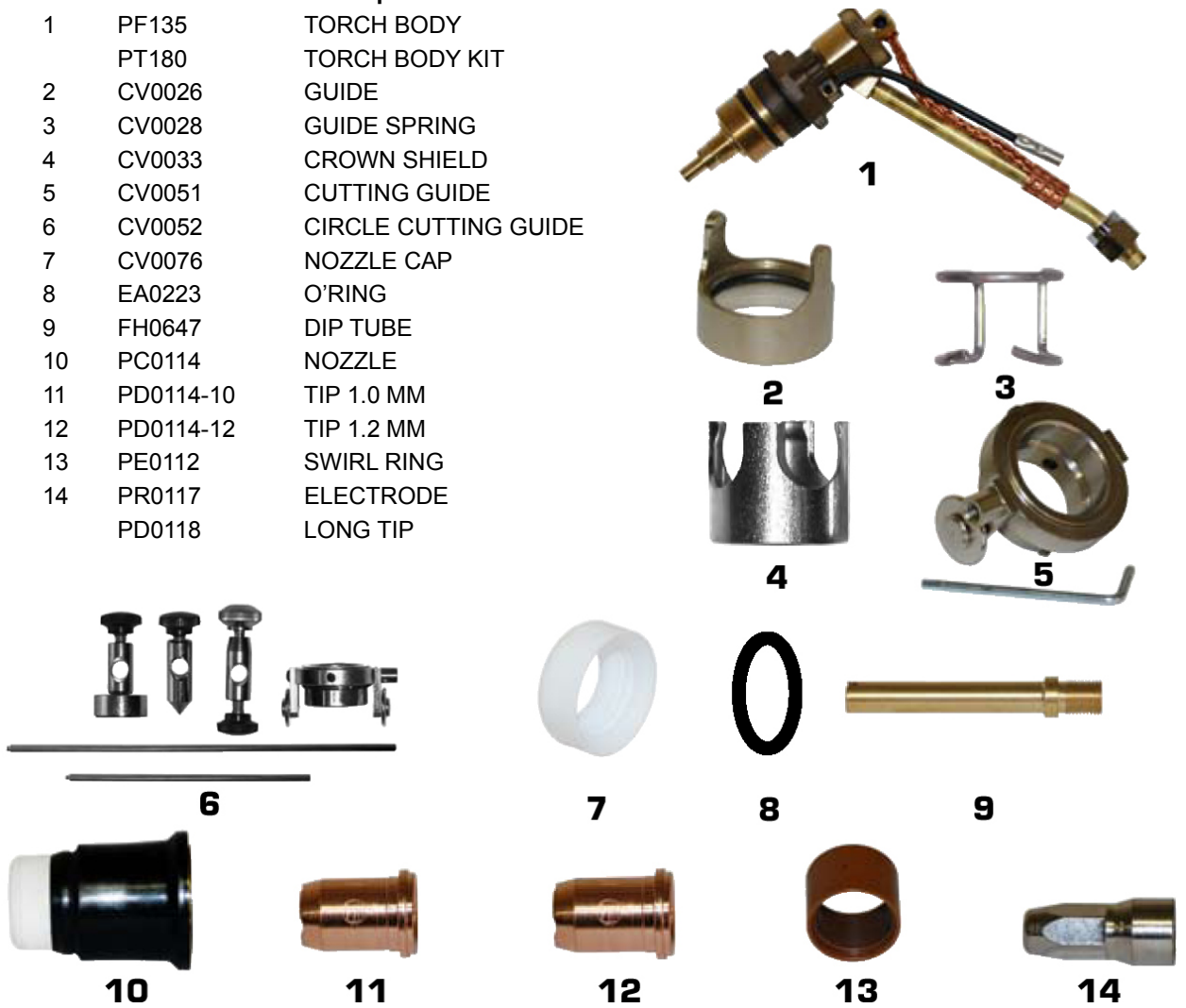


Figure 7.7

NOTES

WELDKING™ THUNDERCUT65

SECTION 7 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.

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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 8 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:

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

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