



www.r-techwelding.co.uk
email: sales@r-techwelding.co.uk

Tel: 01452 733933 Fax 01452 733939



TIG160PDC DC TIG WELDER

OPERATION INSTRUCTIONS



Version 2014-1

Thank you for selecting the R-Tech Tig160PDC Inverter DC Tig Welder.

The Tig160PDC has many benefits over traditional TIG welders, including pulse welding, slope up/down and an industrial 35% duty cycle.

We want you to take pride in operating our Tig160PDC as much pride as we have taken in making this product for you.

PLEASE EXAMINE THE CARTON AND EQUIPMENT FOR DAMAGE IMMEDIATELY

When this equipment is shipped, title passes to the purchaser upon receipt from the courier. Consequently all claims for material damaged in shipment must be made by purchaser against the transportation company used.

Please record your equipment identification below for future reference. This information can be found on the data plate at rear of machine.

Product: TIG160PDC

Serial No. _____

Date of Purchase _____

Where Purchased _____

Whenever you request replacement parts or information on this equipment please always supply information you have recorded above.

This product is covered by a 2 year parts and labour warranty; we will cover cost of collecting, repair and returning the item to you to for UK mainland (other areas are RTB). External items, (torch, earth lead etc...) are covered by a 3 month warranty. Any faults/damage found caused by a customer will be charged accordingly.

Pay particular attention to the safety instructions we have provided you for your protection

The level of seriousness to be applied to each section is explained below

WARNING

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

CAUTION

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

Introduction

**The R-Tech Tig160PDC is a member of our field acclaimed family of welding products.
Premium features include:-**

1. Inverter power source – more efficient to operate, provides smoother weld characteristics.
2. Pulse welding in DC Tig welding mode
3. HF Arc start – Easy arc striking and prolonged tungsten life
4. Slope up / slope down
5. Digital amp meter
6. Industrial 35% Duty cycle at 160 Amps @ 40C

Recommended Processes

The R-Tech Tig160PDC is recommended for the Tig welding processes within its output capacity of 160 Amps

Equipment Limitations

The R-Tech Tig160PDC is protected from overloads beyond the output ratings and duty cycle as per machine specifications with thermostat protection of the output coils and rectifiers.

Welding Capability – Duty Cycle

The R-Tech Tig160PDC is rated at 160 Amps at 35% duty cycle on a ten minute basis. If the duty cycle is exceeded a thermal protector will shut machine off until the machine cools.

Technical Specifications

Model No.	R-Tech TIG160PDC	
Input	240V AC 50/60Hz	Fuse Slow-blow 13Amp
MMA	No-load Voltage	60V – 80V
	Current Range	5A – 125A
	Rated Output Current	125A
	Duty Cycle	35%
DC TIG	No-load Voltage	60V – 80V
	Current Range	5A – 160A
	Rated Output Current	160A
	Duty Cycle	35%
	Up-Slope Time	5 Seconds
	Down-Slope Time	5 Seconds
	Pulse Frequency Range	0.5Hz – 25Hz
	Gas Post Flow Time	1 – 10 Seconds
	Arc Starting Mode	High Frequency
Gross Weight	12 KG	
Insulation	IP21S	
Dimensions mm	425 x 195 x 310	

Safety Precautions

Read entire section before starting installation



Electric Shock can kill – Only qualified personnel should perform this installation. Turn off input power at the fuse box before working on this equipment. Do not touch electrically live parts. Always connect the machine to an earthed mains supply as per national recommended standards.

Select suitable location

Place the welder where clean cooling air can freely circulate in and out of the front & rear louver vents. Dirt, dust or any foreign material that can be drawn through vents into welder must be kept to a minimum. Failure to observe these precautions can result in excessive operating temperatures which can lead to plant failure.

Grinding

Do not direct grinding particles towards the welder. An abundance of conductive material can cause plant failure.

Stacking

This machine cannot be stacked.

Transport – Unloading

Never underestimate the weight of equipment, never move or leave suspended in the air above people. Use recommended lifting equipment at all times.



Falling Equipment can cause injury. Never lift welder with gas bottle attached. Never lift above personnel.

Tilting

Machine must be placed on a secure level surface or on a recommended undercarriage/trolley. This machine may topple over if this procedure is not followed.

Environmental Rating

The welding power source carries the IP21S rating. It may be used in normal industrial and commercial environments. Avoid using in areas where water / rain is around.

Read and follow the 'Electric Shock Warnings' in the safety section if welding must be performed under electrically hazardous conditions such as welding in wet areas or water on the work piece.

Electrical Installation



ELECTRIC SHOCK CAN KILL

Machine grounding and High Frequency Interference Protection

This welder must be grounded to earth. See national electrical codes for proper grounding methods.

The high frequency generator being similar to a radio transmitter may cause interference to radio, TV and other electronic equipment. These problems may be the result of radiated interference. Proper grounding methods can reduce or eliminate this.

Radiated interference can develop in the following ways

1. Direct interference from welder power source
2. Direct interference from the welding leads
3. Direct interference radiated from feedback into power lines
4. Interference from re-radiation by un-grounded metallic objects.

Keeping these contributing factors in mind, installing equipment as per following instructions should minimize problems.

1. Keep the welder input power lines as short as possible and enclose as much of them as possible in metal conduit or equivalent shielding. There should be a good electrical contact between this conduit and ground (Earth).
2. Keep the work and electrode leads as short as possible. Tape the leads together where practical.
3. Be sure the torch and earth leads rubber coverings are free from cuts and cracks that allow welding power leakage
4. Keep earth lead connection to work in good condition – Clean area on workbench where earth clamp is situated on a regular basis.

Input Connections

Make sure the voltage, phase and frequency of input power is as specified on machine rating plate located at rear of machine.

Have a qualified electrician provide suitable input power as per national electrical codes. Make sure machine is earthed / grounded.

Make sure fuse or circuit breaker is correct rating for machine. Using fuses or circuit breakers smaller than recommended will result in 'nuisance' shut off from welder inrush currents even if welding at low amperages.

Failure to follow these instructions can cause immediate failure within the welder and void machines warranty.

Turn the input power OFF at the mains switch & fuse box before working on this equipment.

Have a qualified electrician install & service this equipment.

Allow machine to sit for 5 minutes minimum to allow the power capacitors to discharge before working inside this equipment. Do not touch electrically live parts

The TIG160PDC Inverter Tig Welder requires a 240V 50/60Hz 13amp fused supply. It comes with a 2 metre mains cable attached.

Connect wires according to national coding.

Brown wire – Live
Blue wire – Neutral
Green/Yellow Wire – Earth (Ground)

Connecting to an Engine Driven Generator

If connecting this machine to an engine driven generator please ensure the following

Minimum Generator KVA Output – 5 KVA continuous

Generator to be fitted with AVR (automatic voltage regulation)

DO NOT USE ON A GENERATOR WITHOUT AVR

Connecting to a generator without the above minimum requirements will invalidate your warranty.

Connections for Tig160PDC

Rear machine connections



Fig 1

1. **Mains input cable**

Fit required plug as per your electrical installation

2. **On/Off Switch**

3. **Gas input connector**

Connect input gas hose ensuring connection is tight

4. **Earth for chassis**

If experiencing localized interference when using machine, connect workbench to this point using correct graded earth wire (not normally used)

Connections for TIG (GTAW) Welding

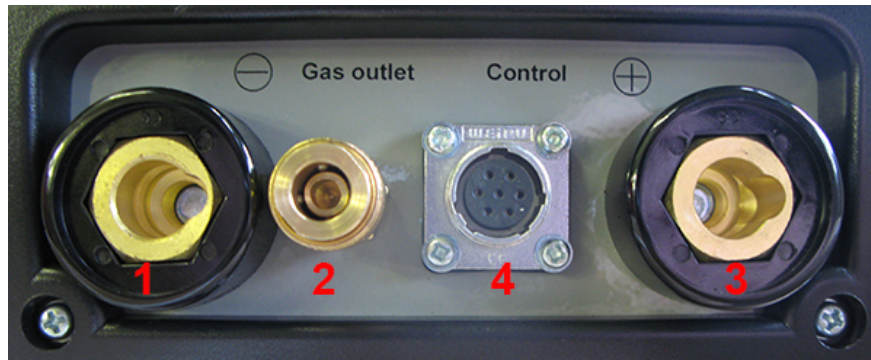


Fig 2

1. **Negative power connector -**

Connect Tig Torch Dinze to power connector by inserting and twisting until tight

2. **Gas outlet**

Connect the torch gas hose

3. **Positive power connector +**

Connect the earth lead to by inserting and twisting until tight and the earth clamp to work/bench

4. **Torch control socket 2-Pin**

Connect torch control plug

To avoid a High Frequency shock keep the Tig torch in good condition and replace if any of the insulation is damaged.

Connect the gas input hose to gas regulator and use 'Pure Argon' Gas, available from local suppliers. Set gas flow/pressure to 8-12 LPM.

Make sure gas bottle is secured to avoid injury.

Connections for STICK MMA (SMAW) Welding

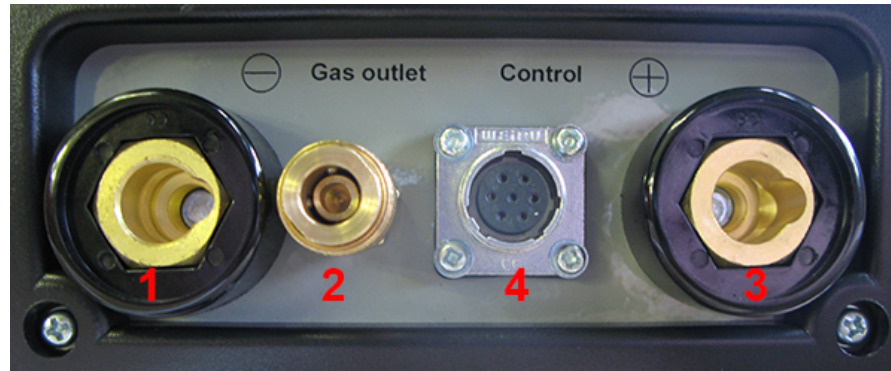


Fig 3

1. **Negative power connector -**

Connect the earth lead to by inserting and twisting until tight and the earth clamp to work/bench.

2. **Gas Outlet – NOT used in MMA mode**

3. **Positive power connector +**

Connect the electrode holder by inserting and twisting until tight

4. **Torch switch plug – Not used in MMA mode**

Controls and settings



Fig 4

1. Up slope

Adjustment 0-5 seconds. The main welding current raises from minimum amperage to main current selected in time selected when weld started

2. Down slope

Down-Slope adjustment 0-5 seconds. The main welding current decreases from main amperage to minimum amperage in time selected when weld finished

3. Main current control

This adjusts the main welding current and is shown in L.E.D (Fig 4.9) when welding is in process.

4. Pulse frequency adjustment

This sets how often pulse will occur and is adjustable from 0.5Hz to 25Hz.

5. Gas post flow adjustment

Adjustable from 1 – 10 seconds. The gas keeps flowing after weld has finished, this cools & stops tungsten from getting contaminated. Note: Gas pre-flow time is fixed at 0.5 seconds in TIG mode but no pre-flow time will occur if the arc is restarted during post flow time as gas is already flowing.

6. MMA-TIG mode switch.

Switches between TIG (GTAW) & MMA STICK (SMAW) welding.

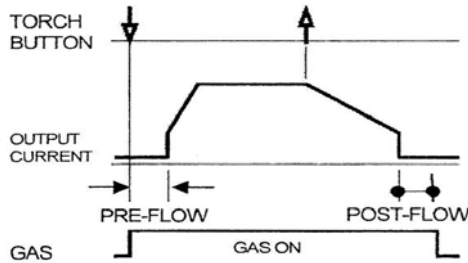
7. **Pulse On/Off switch**

This turns the pulse welding on and off.

8. **2/4 Way selector switch**

2/4 Step trigger mode switch – tig welding can either be done in 2 or 4 step mode.

When the trigger mode is in the 2 step position the following sequence will occur



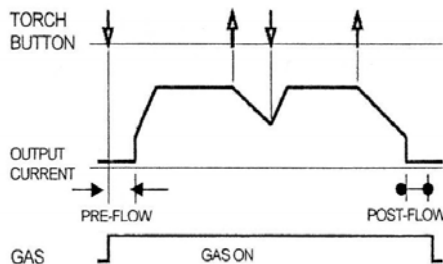
Press and hold the Tig torch switch to start sequence.

The machine will open gas valve to start flow of shield gas, after a 0.5 seconds pre-flow time to purge air from torch hose the welding output of machine will be turned on and the arc will be started. After the arc is started the output current will increase from the start (min) current to base (main) current in time selected by slope-up.

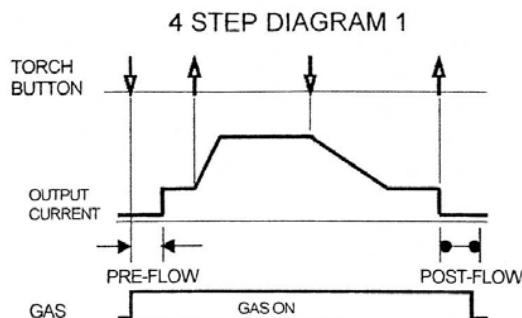
Release the Tig torch switch to end sequence.

The machine will now decrease output to finish (min) current in time set by slope-down, once at finish (min) current the machine will stop output and the gas valve will continue to operate for the selected time (post flow)

Possible variations of this standard sequence are shown in diagram below. It is possible to press and hold tig torch switch a second time during down slope time to restart. After the switch is pressed the output current will raise to base (main) current



When the trigger mode is in the 4 step position the following sequence will occur



Press and hold the tig torch switch to start sequence.

The machine will open gas valve to start flow of shield gas, after a 0.5 seconds pre-flow time to purge air from torch hose the welding output of machine will be turned on and the arc will be started. After the arc is started the output current will be at start (min) current

This condition can be maintained as long as required.

Release the tig torch switch to go to step 2

The machine will now increase output to base (main) current in time set by slope-up.

Press and hold the tig torch switch when main weld is complete

The machine will now decrease the welding output current to finish (min) in down-slope time set. Once at finish (min) output you can release the Tig torch switch to end weld the gas post-flow will continue to run for set time.

9. **LED Display**

3 digit LED meter is used to display the actual amperage (when welding).

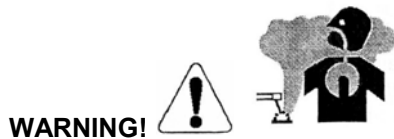
Operating machine

SAFETY PRECAUTIONS



ELECTRIC SHOCK CAN KILL

**Do not touch electrically live parts or electrode with skin or wet clothing.
Insulate yourself from work and ground
Always wear dry insulating gloves**



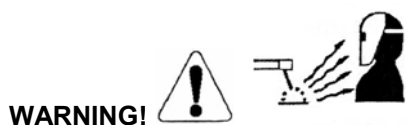
FUMES AND GASES can be dangerous

**Keep your head out of fumes & gases produced from welding.
Use ventilation or exhaust to remove fumes & gases from breathing zone and general area.**



WELDING SPARKS can cause fire or explosion

**Keep flammable material away from work area.
Do not weld on containers that have held combustibles**



ARC RAYS can burn

Wear eye, ear and body protection – Make sure work area is protected by proper shielding to avoid injury to passers by.

Welding in TIG mode – No Pulse

1. Connect the Tig Torch to machine, connect earth lead to machine & work piece.
2. Set the TIG/MMA switch to TIG
3. Set Pulse Switch to Off position
4. Select 2 or 4 way torch operation
5. Connect Argon gas and set flow to approx 8-12 LPM
6. Set Gas post flow to 3 x diameter of tungsten width
7. Adjust Base current to desired welding current
8. Press the Tig torch switch to start welding

Welding in TIG mode – with Pulse

1. Connect the Tig Torch to machine, connect earth lead to machine & work piece.
2. Set the TIG/MMA switch to TIG
3. Select 2 or 4 way torch operation
4. Connect Argon gas and set flow to approx 8-12 LPM
5. Set Gas post flow to 3 x diameter of tungsten width
6. Set Pulse On/Off switch to ON
7. Adjust Pulse freq. to desired setting (how often pulse happens)
8. Press the Tig torch switch to start welding

The benefits of pulse welding is the ability to control the weld pool and amount of heat absorbed by work resulting in a smaller heat affected zone which results in fewer deformations and reduced chance of cracking. There are no set rules for pulse welding as this is down to personal choice by the welder.

Tig tungsten size / amperage guide

All values below are based on using pure argon shielding gas. Other current values may be employed depending on the shielding gas and application

ELECTRODE RATINGS			
Electrode Diameter (mm)	2% Thoriated on DC (amps) Red Tip – Grind to point	Pure Tungsten on DC (amps)	Zirconiated 0.8% Tungsten on AC (amps) White Tip – No need to grind
1.0mm / 0.040"	5 - 80	30	20 - 60
1.6mm / 1/16"	40- 150	80	40 - 100
2.4 mm/ 3/32"	140 - 250	130	80 - 180
3.2mm / 1/8"	240 - 400	180	160 - 250
4.0mm / 5/32"	380- 500	240	220 - 320
4.8mm / 3/16"	500- 750	300	280 - 390
6.4mm / 1/4"	750 - 1000	400	360 - 525

Welding in STICK MMA (SMAW) Mode

1. Fit MMA electrode holder to machine
2. Fit earth lead to machine and to work piece
3. Select MMA on MMA/TIG switch
4. Place electrode in holder
5. Select desired welding base current
6. Strike arc and weld

WARNING!



ELECTRIC SHOCK CAN KILL

When machine is switched to MMA mode, output terminals are always live, take care and do not touch electrode and earth by person at same time, otherwise electric shock will occur.

The foot pedal has no affect on welding current in MMA mode and the gas flow and high frequency starting circuit is disabled.

Maintenance

Routine and periodic maintenance



WARNING!

ELECTRIC SHOCK CAN KILL

Turn the input power OFF at the mains switch & fuse box before working on this equipment.

Have a qualified electrician install & service this equipment.

Allow machine to sit for 5 minutes minimum to allow the power capacitors to discharge before working inside this equipment.

Do not touch electrically live parts

1. Periodically remove the side/top panels of machine and clean out machine with a low pressure dry air line paying particular attention to PC Boards, Fan blades, HF points
2. Inspect input and output cables & hoses for fraying, cuts & bare spots
3. Keep tig torch and cables in good condition
4. Clean air vents to ensure proper air flow and cooling
5. The fan motor has sealed bearings which requires no maintenance

Troubleshooting

Service & repair should only be performed by R-Tech welding trained personnel. Un-authorized repairs performed on this welding equipment may result in danger or injury to the technician and machine operator and will invalidate your warranty.

For your safety and to avoid electric shock, please observe all safety notes and precautions detailed throughout this manual

The troubleshooting guide is provided to help you locate possible machine malfunctions

If fault / problem is not listed below check our [Tig Welder Support](#) page on our website

www.r-techwelding.co.uk/support.php or contact R-Tech by phone. Contact details can

be found on front of this manual and our website

Tig welding problems

- **No output - Power light is not lit**

Check machine on/off switch is in the 'on' position

Check Input power to machine

Check plug wiring

Check mains trip / fuses

- **No output - Fan runs - Power light is lit**

Check torch connections are secure and torch switch operation, try replacing tig torch.

If you have a multi-meter check continuity between pins 1 and 2 on torch switch plug when pressing torch switch

- **No output - Power light is lit - Warning light is lit**

Welding application may have exceeded recommended duty cycle, allow machine to cool down until the warning light goes out.

- **No output – Power light is lit – Gas at torch end when trigger pressed**

Check torch condition – possible break in torch power cable – replace torch

- **Machine keeps overheating - Warning light is lit on machine**

Check if fan is running – if not contact R-Tech for repair

Check the cooling vents for obstruction, blow out machine with clean dry low pressure air supply. Check for adequate ventilation around machine

- **Porosity in weld – No / low gas at torch tip**

Check gas supply from gas bottle

Check flow rate on regulator

Check gas hose for restrictions

Check for draughts in local area, open doors etc

Replace TIG torch – may have gas restriction

- **Poor weld penetration**

Check condition of earth lead and clamp and ensure clamp is connection via a clean area on work piece

Check condition of TIG torch, try other TIG torch

- **Machine stuck on minimum amps when welding although higher amperage has been set**

Make sure machine has not been set to 4-way operation as when in this mode when you press torch switch you get minimum amps and when you let go of switch machine will go to maximum amps set.

- **Arc 'Flutters' when TIG welding**

1. Tungsten electrode may be too large in diameter for the current setting.
2. Tungsten not sharp when in DC mode
3. Gas shielding flow may be low or high, check gas flow , reduce tungsten stick out beyond ceramic
4. Check for leaks in torch & gas hoses

- **Black areas along weld bead**

1. Clean any oily or organic contamination from the work piece
- 2 Tungsten electrode contaminated. Replace or sharpen
- 3 Check for leaks or contamination on gas hoses & connections.
- 4 Gas flow may be insufficient, Increase gas flow, reduce tungsten stick out from ceramic

- **Weak HF – Poor arc striking – welding output normal**

- 1 Check torch and earth connections – is torch cable insulation in good condition.
- 2 Check for leaks or contamination on gas hoses & connections.
- 3 Gas flow may be insufficient, increase gas flow, reduce tungsten stick out from ceramic
- 4 Keep output cables short as possible

- **HF spark is present at the tungsten electrode but unable to start welding arc, Machine has normal welding output**

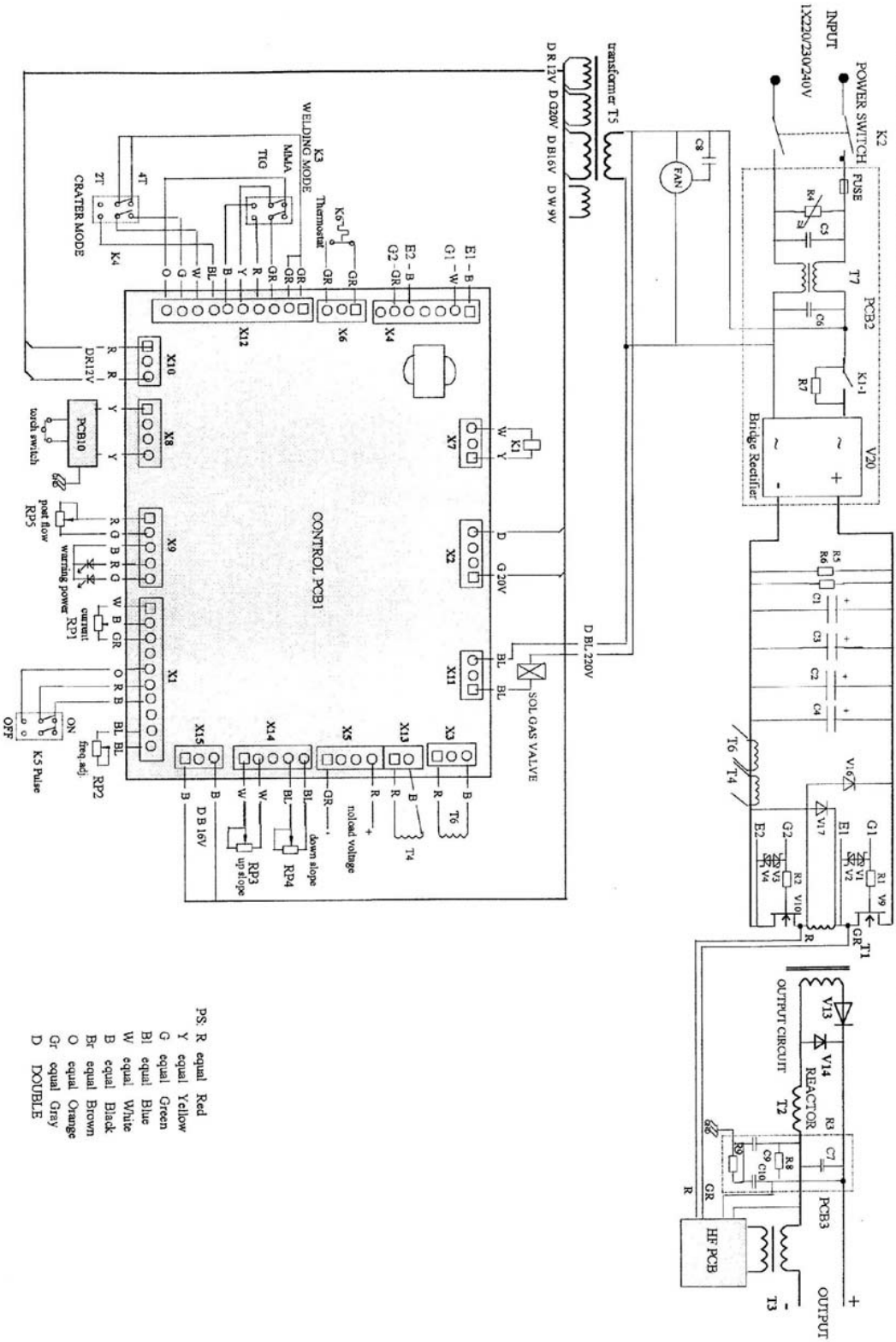
- 1 Tungsten may be contaminated - replace or sharpen
- 2 The current may be set too low
- 3 Tungsten may be too large for process

- 4 Gas flow may be insufficient, increase gas flow, reduce tungsten stick out from ceramic
- **No HF when torch trigger pressed, no blue spark between HF points**
Examine and clean HF points with clean dry low pressure air line
HF PCB faulty – Contact R-Tech for repair

MMA Stick welding problems

- **Stick electrode 'blasts off' when arc is struck**
Welding current set to high, reduce amperage or use thicker electrode
Contaminated electrodes or material
- **Electrode sticks in weld puddle**
Welding current is set too low
Arc is too short, keep electrode further away from work
- **Excessive splatter**
Too long an arc, keep electrode closer to work
- **Poor penetration**
Travel speed too fast
Too much welding current, reduce welding amperage
- **Porosity in weld**
Electrodes are damp
Arc too long, get electrode closer to work

DC INVERTER TIG MACHINE WIRING DIAGRAM



			
WARNING	<ul style="list-style-type: none"> Do not touch electrically live parts or electrode with skin or wet clothing. Insulate yourself from work and ground. 	<ul style="list-style-type: none"> Keep flammable materials away. 	<ul style="list-style-type: none"> Wear eye, ear and body protection.
Spanish AVISO DE PRECAUCION	<ul style="list-style-type: none"> No toque las partes o los electrodos bajo carga con la piel o ropa mojada. Aíselese del trabajo y de la tierra. 	<ul style="list-style-type: none"> Mantenga el material combustible fuera del área de trabajo. 	<ul style="list-style-type: none"> Protéjase los ojos, los oídos y el cuerpo.
French ATTENTION	<ul style="list-style-type: none"> Ne laissez ni la peau ni des vêtements mouillés entrer en contact avec des pièces sous tension. Isolez-vous du travail et de la terre. 	<ul style="list-style-type: none"> Gardez à l'écart de tout matériel inflammable. 	<ul style="list-style-type: none"> Protégez vos yeux, vos oreilles et votre corps.
German WARNUNG	<ul style="list-style-type: none"> Berühren Sie keine stromführenden Teile oder Elektroden mit Ihrem Körper oder feuchter Kleidung! Isolieren Sie sich von den Elektroden und dem Erdboden! 	<ul style="list-style-type: none"> Entfernen Sie brennbares Material! 	<ul style="list-style-type: none"> Tragen Sie Augen-, Ohren- und Körperschutz!
Portuguese ATENÇÃO	<ul style="list-style-type: none"> Não toque partes elétricas e electrodos com a pele ou roupa molhada. Isole-se da peça e terra. 	<ul style="list-style-type: none"> Mantenha inflamáveis bem guardados. 	<ul style="list-style-type: none"> Use proteção para a vista, ouvido e corpo.
Japanese 注意事項	<ul style="list-style-type: none"> 通電中の電気部品、又は溶材にヒフやぬれた布で触れないこと。 施工物やアースから身体が絶縁されている様にして下さい。 	<ul style="list-style-type: none"> 燃えやすいものの側での溶接作業は絶対にしてはなりません。 	<ul style="list-style-type: none"> 目、耳及び身体に保護具をして下さい。
Chinese 警告	<ul style="list-style-type: none"> 皮肤或湿衣物切勿接触带电部件及焊缝。 使你自己离地面和工作件绝缘。 	<ul style="list-style-type: none"> 把一切易燃物品移离工作场所。 	<ul style="list-style-type: none"> 佩戴眼、耳及身体劳动保护用具。
Korean 위험	<ul style="list-style-type: none"> 전도체나 음접점을 젖은 환경 또는 피부부 절대 접촉치 마십시오. 오재의 접지를 접촉치 마십시오. 	<ul style="list-style-type: none"> 인화성 물질을 접근 시키지 마십시오. 	<ul style="list-style-type: none"> 눈, 귀와 몸에 보호장구를 착용하십시오.
Arabic تحذير	<ul style="list-style-type: none"> لا تلمس الأجزاء التي يسري فيها التيار الكهربائي أو الأقطاب بجهد الجسم أو بالملابس المبللة بالماء. ضع عازل على جسمك خلال العمل. 	<ul style="list-style-type: none"> ضع المواد القابلة للاشتعال في مكان بعيد. 	<ul style="list-style-type: none"> ضع أدوات وملابس واقية على عينيك وأذنيك وجسمك.

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

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

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

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

			
<ul style="list-style-type: none"> ● Keep your head out of fumes. ● Use ventilation or exhaust to remove fumes from breathing zone. 	<ul style="list-style-type: none"> ● Turn power off before servicing. 	<ul style="list-style-type: none"> ● Do not operate with panel open or guards off. 	WARNING
<ul style="list-style-type: none"> ● Los humos fuera de la zona de respiración. ● Mantenga la cabeza fuera de los humos. Utilice ventilación o aspiración para gases. 	<ul style="list-style-type: none"> ● Desconectar el cable de alimentación de poder de la máquina antes de iniciar cualquier servicio. 	<ul style="list-style-type: none"> ● No operar con panel abierto o guardas quitadas. 	Spanish AVISO DE PRECAUCION
<ul style="list-style-type: none"> ● Gardez la tête à l'écart des fumées. ● Utilisez un ventilateur ou un aspirateur pour ôter les fumées des zones de travail. 	<ul style="list-style-type: none"> ● Débranchez le courant avant l'entretien. 	<ul style="list-style-type: none"> ● N'opérez pas avec les panneaux ouverts ou avec les dispositifs de protection enlevés. 	French ATTENTION
<ul style="list-style-type: none"> ● Vermeiden Sie das Einatmen von Schweißrauch! ● Sorgen Sie für gute Be- und Entlüftung des Arbeitsplatzes! 	<ul style="list-style-type: none"> ● Strom vor Wartungsarbeiten abschalten! (Netzstrom völlig öffnen; Maschine anhalten!) 	<ul style="list-style-type: none"> ● Anlage nie ohne Schutzgehäuse oder Innenschutzverkleidung in Betrieb setzen! 	German WARNUNG
<ul style="list-style-type: none"> ● Mantenha seu rosto da fumaça. ● Use ventilação e exaustão para remover fumo da zona respiratória. 	<ul style="list-style-type: none"> ● Não opere com as tampas removidas. ● Desligue a corrente antes de fazer serviço. ● Não toque as partes elétricas nuas. 	<ul style="list-style-type: none"> ● Mantenha-se afastado das partes moventes. ● Não opere com os painéis abertos ou guardas removidas. 	Portuguese ATENÇÃO
<ul style="list-style-type: none"> ● ヒュームから顔を離すようにして下さい。 ● 換気や排煙に十分留意して下さい。 	<ul style="list-style-type: none"> ● メンテナンス・サービスに取りかかる際には、まず電源スイッチを必ず切ってください。 	<ul style="list-style-type: none"> ● パネルやカバーを取り外したまま機械操作をしないで下さい。 	Japanese 注意事項
<ul style="list-style-type: none"> ● 頭部遠離煙霧。 ● 在呼吸區使用通風或排風器除煙。 	<ul style="list-style-type: none"> ● 維修前切斷電源。 	<ul style="list-style-type: none"> ● 氣表板打開或沒有安全罩時不準作業。 	Chinese 警告
<ul style="list-style-type: none"> ● 얼굴로부터 용접가스를 멀리하십시오. ● 호흡지역으로부터 증접가스를 제거하기 위해 가스제거기나 통풍기를 사용하십시오. 	<ul style="list-style-type: none"> ● 보수전에 전원을 차단하십시오. 	<ul style="list-style-type: none"> ● 관널이 열린 상태로 작동치 마십시오. 	Korean 위험
<ul style="list-style-type: none"> ● إبتعد رأسك بعيداً عن الدخان. ● استعمل التهوية أو جهاز ضغط الدخان للخارج لكي تبعد الدخان عن المنطقة التي تتنفس فيها. 	<ul style="list-style-type: none"> ● أقطع التيار الكهربائي قبل القيام بأية صيانة. 	<ul style="list-style-type: none"> ● لا تشغل هذا الجهاز إذا كانت الإغطية الحديدية الواقية ليست عليه. 	Arabic تحذير

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

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

請詳細閱讀並理解製造廠提供的說明以及應該使用的銀焊材料，並請遵守貴方的有關勞動保護規定。

이 제품에 동봉된 작업지침서를 숙지하시고 귀사의 작업자 안전수칙을 준수하시기 바랍니다.

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