

INVERTER DC TIG WELDER

LONGRUN 350LT

OPERATION MANUAL



DO NOT INSTALL, OPERATE OR MAINTAIN THIS MACHINE WITHOUT READING THIS MANUAL AND PLEASE ALWAYS THINK BEFORE YOU ACT.

www.worldwel.com

■ TECHNICAL SPECIFICATIONS

- Non contact arc starting by **HIGH FREQUENCY CIRCUIT**
- **ELECTRIC SHOCK PROTECTOR** reduces No load voltage to 14VDC for user safety when welder is not in use.
- Easy to verify welding current during welding by **DIGITAL AMMETER**
- Portable by compact size & lightweight

ITEM		UNIT	SPECIFICATION							
Rated Input Voltage		V	220				220/380			
			3 Phase		1 Phase		3 Phase		1 Phase	
Process		—	TIG	STICK	TIG	STICK	TIG	STICK	TIG	STICK
Rated Output Current		A	300	200	250	200	300	200	250	200
Input capacity	220V	kva	10.1	8.1	10.1	8.1	10.1	8.1	10.1	8.1
	380V		—				10.1	8.1	10.1	8.0
No Load Voltage		V	70							
Output Current Range		A	10~300	20~200	10~250	20~200	10~300	20~200	10~250	20~200
Output Voltage @ rated output	220V	V	22	28	22	28	22	28	22	28
	380V						22	28	22	28
Duty Cycle @ rated output		%	60							
Crater Current Range		A	10 ~ 50							
Pulse Current Range		A	10 ~ 120							
Pulse Frequency Range		Hz	0.5 ~ 500							
Gas After Flow		sec	0.5 ~ 6							
Down Slope Time Range		sec	0.5 ~ 6							
Weight		kg	21				22			
Dimension (W×D×H)		mm	280 × 490 × 430							

General Safe Practices

- Wear approved safety glasses with side shields under your welding helmet or face shield and at all times in the work area.
- When working above floor level, use a safety belt to protect yourself from a fall should you get a shock.
- Do not install or place machine on or over combustible surfaces.
- Be sure that all installation, operation, maintenance and repair procedures are performed only by qualified persons.

Electric shock can kill.

- Wear Dry, hole-free insulating gloves and body protection. Do not touch electrode with bare hand. Do not wear wet or damaged gloves.
- Do not touch live electrical parts.
- Never dip the electrode in water for cooling.
- Properly install and ground all equipment.
- Protect yourself from electric shock by insulating yourself from work and ground. Use non-flammable, dry insulating material if possible, or use dry rubber mats, dry wood or plywood, or other dry insulating material big enough to cover your full area of contact with the work or ground, and watch for fire.
- Turn off input power using the disconnect switch at the fuse box before working on the equipment.
- Frequently inspect input power cord for damage or bare wiring and repair or replace cord immediately if damaged.

Fumes and gases can be dangerous.

- Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. When welding, keep your head out of the fume. Use enough ventilation and/or exhaust at the arc to keep fumes and gases away from the breathing zone.
- Use enough forced ventilation or local exhaust (forced suction) at the arc to remove the fumes from your breathing area.
- Use a ventilating fan to remove the fumes from the breathing zone and welding area.

Arc rays can burn eyes and skin.

- Use welding helmet with correct shade of filter to protect your eyes from sparks and the rays of the arc.
- Wear welders cap and safety glasses with side shields. Use ear protection when welding out of position or in confined spaces. Button shirt collar.
- Wear complete body protection. Wear oil-free protective clothing such as leather gloves, heavy shirt, cuffless pants and high boots.

Welding sparks can cause fire or explosion.

- Remove fire hazards from the welding area. If this is not possible, cover them to prevent the welding sparks from starting a fire. Remember that welding sparks and hot materials from welding can easily go through small cracks and opening to adjacent areas. Avoid welding near hydraulic lines.
- When not welding, make certain no part of the electrode circuit is touching the work or ground. Accidental contact can cause overheating and create a fire hazard.
- Do not weld on drums, tanks, or any closed containers unless a qualified person has tested it and declared it or prepared it to be safe.
- Connect the work cable to the work as close to the welding area as practical. Work cables connected to the building framework or other locations away from the welding area increase the possibility of the welding current passing through lifting chains, crane cables or other alternate circuits. This can create fire hazards or overheat lifting chains or cables until they fail.

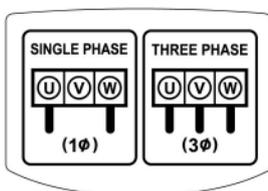
■ INSTALLATION

● The welding machine shall be installed at a place ;

- free from the inflammables
- less humidity, dirt and dust
- protecting from influence of direct sunlight, wind and rain
- not generated oil vapor and corrosive gas
- operating temperature range is from -10°C to 40°C
- least 30cm away from wall and other welding machine

● Input Connection (Rear of the machine)

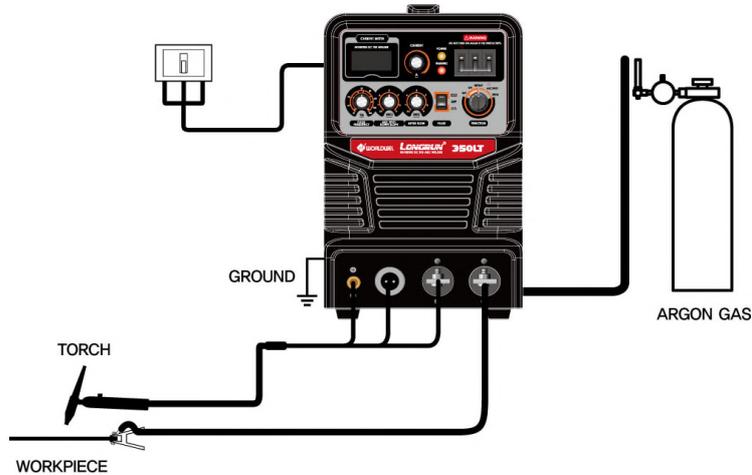
Be sure the voltage, phase and frequency of the input power is as specified on the name plate located on the rear panel of the machine.



- To connect the power cables, turn the power switch OFF
- Verify the voltage to be supplied from main power.
- Open the cover of terminal plate and connect the power cable to the power input terminal on the rear of the machine and close the cover of terminal plate.
- √. If the input power is single phase, connect two cables on left and right terminal without center.
 - For grounding the machine, connect a ground wire to the ground terminal marked with the symbol is located on the rear panel of the machine.
 - Connect the gas hose to the gas input terminal.

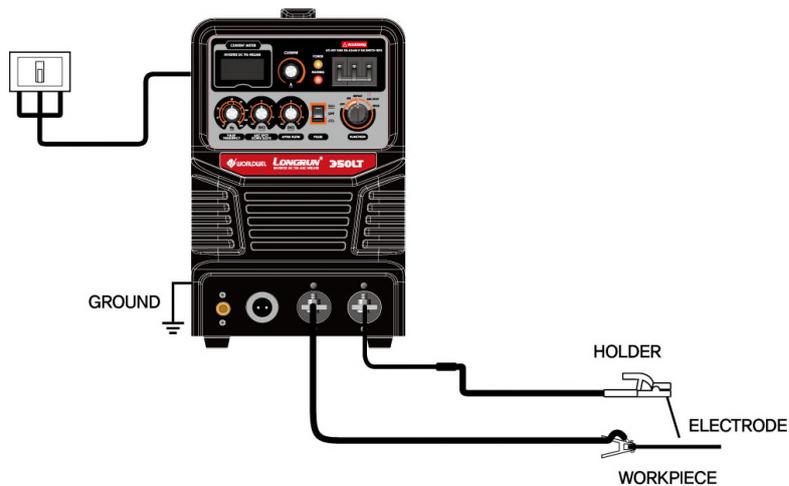
● Output Connection (Front of the machine)

- Connect the work cable (which is connected to the work clamp) to the ⊕ METAL terminal.
- To connect the TIG torch, connect a electrode cable to the ⊖ TORCH terminal and a torch switch connector to the torch switch receptacle and a gas connector to the output gas receptacle.

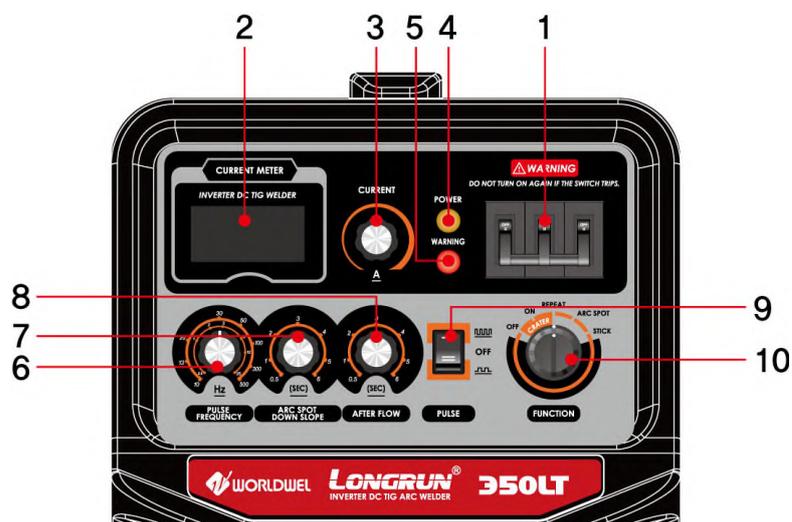


● Output connection for stick welding

- Connect the work cable (which is connected to the work clamp) to the ⊖ TORCH terminal.
- Connect the electrode cable (which is connected to the electrode holder) to the ⊕ METAL terminal.



■ FRONT PANEL



1	Power Switch	When it is turn on, the cooling fan and all of electrical circuit inside the machine will be operated.
2	Ammeter	Displays the welding current
3	Power Lamp	It indicates that the machine is on and input voltage is within acceptable range.
4	Warning Lamp	It indicates the thermal over load or output disabled by any electrical problems. When it is on, the machine will not supply power at the output.
5	Welding Mode Selector	It has five welding modes - Crater Off, Crater On, Crater Repeat, Arc spot and Stick.
6	Welding Current Control	Adjust the welding current
7	Down slope time control	It controls the time to reach to the crater current from the welding current. It is important to carefully control the down slope of current to get the good welding bead.
8	Gas after flow time control	The output current of the machine will turn OFF and then the gas valve will remain open to continue the flow of the gas. It adjusts the duration of this after-flow time.
9	Pulse Frequency selection switch	It choose the pulsed TIG (Low pulse, High pulse) or non pulsed TIG. When compared with non pulsed TIG welding performed at the same average current, the pulsed TIG get better results smaller heat affected zone, fewer deformations and reduced chance of cracking and gas entrapment.
10	Pulse Frequency Control	It controls the pulse frequency. If the low pulse selected at the pulse frequency selection switch, apply the inside circle 0.5-25Hz or if the high pulse selected, apply the outside circle 10-500Hz.

■ Start Up

Stick Welding



Turn On the main power supplied to welder



Select "STICK" from the welding mode selector



Turn On the power switch of welder, and then verify that the power lamp is On and the cooling fan is running



Start to weld with adjusting the proper welding current

TIG Welding



Turn On the main power supplied to welder



Select Crater Off or Crater On or Crater Repeat or Arc Spot from welding mode selector



Adjust properly the down slope time, gas after-flow time and pulse frequency



Open the valve of gas tank



Turn On the power switch of welder, and then verify that the power lamp is On and the cooling fan is running



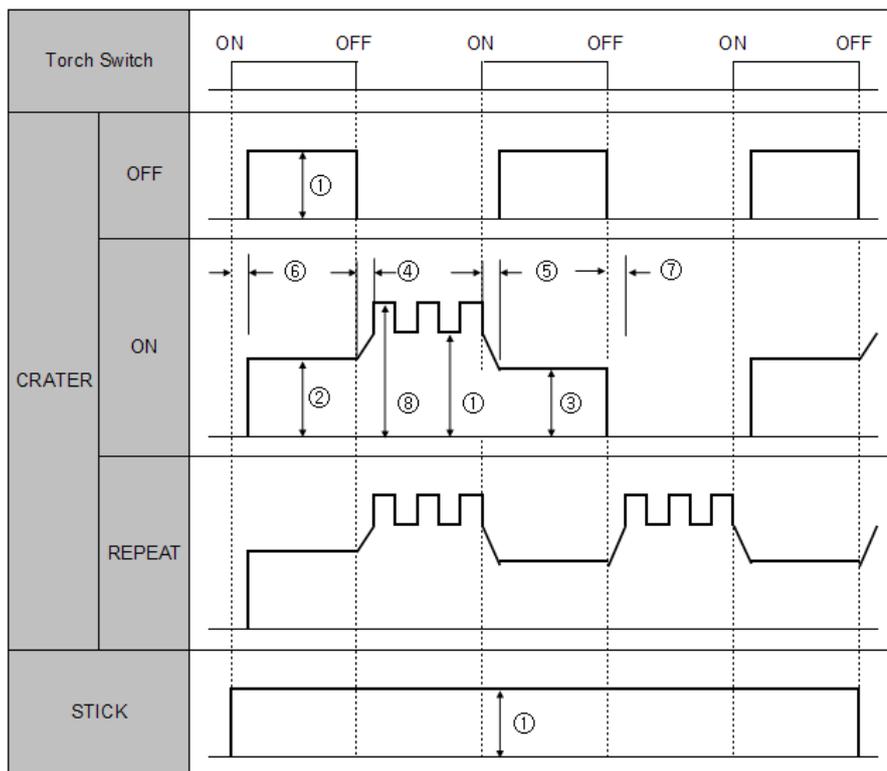
Regulate the gas flowed with pressing the torch switch



Start to weld with adjusting the proper welding current and other parameters

■ Welding Mode

 Crater Off	Press and hold the torch switch, the machine will open the gas valve to start the flow of the shielding gas and then the arc is started at welding current. When finish to weld, release the torch switch, then the arc is off and flow the gas during the gas after-flow time.
 Crater On	Press and hold the torch switch, the machine will open the gas valve to start the flow of the shielding gas and the arc is started at the start current. At this time release the torch switch, the output current will be increased from the start current to the welding current during the up slope time. When finish to weld, press and hold the torch switch, the output current will be decreased from the welding current to the crater current during the down slope time. At this time release the torch switch, the arc is off and flow the gas during the after-flow time.
 Crater Repeat	Press and hold the torch switch, the machine will open the gas valve to start the flow of the shielding gas and the arc is started at the start current. At this time release the torch switch, the output current will be increased from the start current to the welding current during the up slope time. At this time Press and hold the torch switch, the output current will be decreased to crater current and then release the torch switch, the output current will be increased to welding current. When finish to weld, press and hold the torch switch, the output current will be decreased from the welding current to the crater current during the down slope time. At this time just release the torch from the metal to be welded and then the arc is off and flow the gas during the after-flow time.



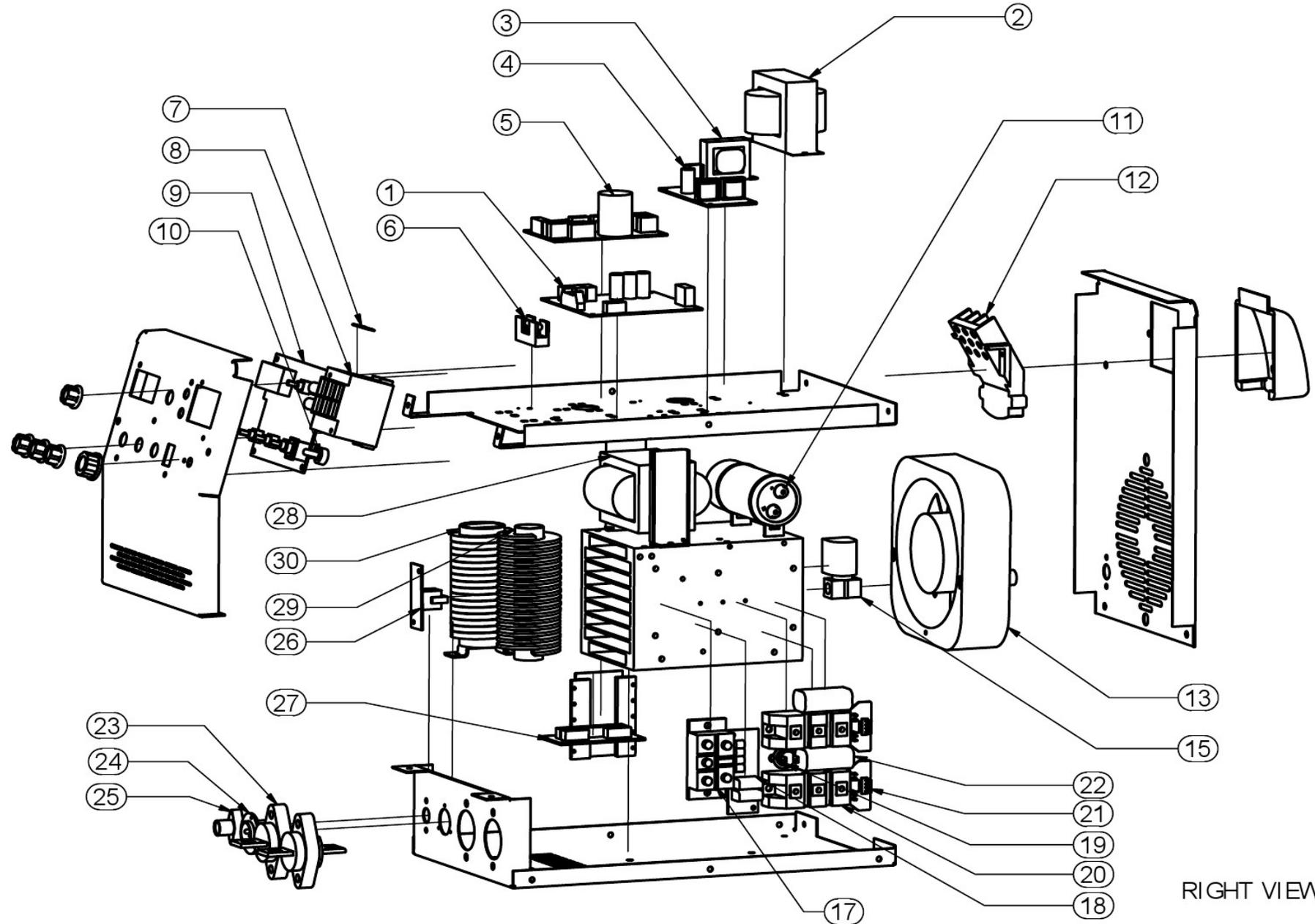
①	Welding current
②	Start current
③	Crater current
④	Up slope time
⑤	Down slope time
⑥	Gas pre-flow time
⑦	Gas after-flow time
⑧	Pulse current

■ TROUBLESHOOTING

SYMPTOMS	REASON	RECOMMENDED ACTION
Cooling fan does not work when the power switch is on.	<ul style="list-style-type: none"> · No input voltage · Fuse (3A) is blown · Power switch broke down · Cooling fan broke down 	<ul style="list-style-type: none"> · Verify input voltage · Replace Fuse (3A) · Replace Power switch · Replace Cooling fan
Gas does not flow from torch when pressing the torch switch	<ul style="list-style-type: none"> · Torch switch connector fail · Torch switch broke down · Control PCB broke down 	<ul style="list-style-type: none"> · Reconnect Torch switch connector · Replace Torch · Replace Control PCB
Gas flows continuously at "Off" position of torch switch	<ul style="list-style-type: none"> · Torch switch broke down · Torch broke down · Control PCB broke down 	<ul style="list-style-type: none"> · Replace Torch switch · Replace Torch · Replace Control PCB
Arc does not started	<ul style="list-style-type: none"> · Torch cable is broke · Torch switch connector fail · Work cable fail · Torch broke down · Control PCB broke down 	<ul style="list-style-type: none"> · Repair Torch cable · Reconnect Torch switch connector · Reconnect Work cable · Replace Torch · Replace Control PCB
Crater does not work	<ul style="list-style-type: none"> · Crater select switch broke down · Control PCB broke down 	<ul style="list-style-type: none"> · Replace Selector of function · Replace Control PCB

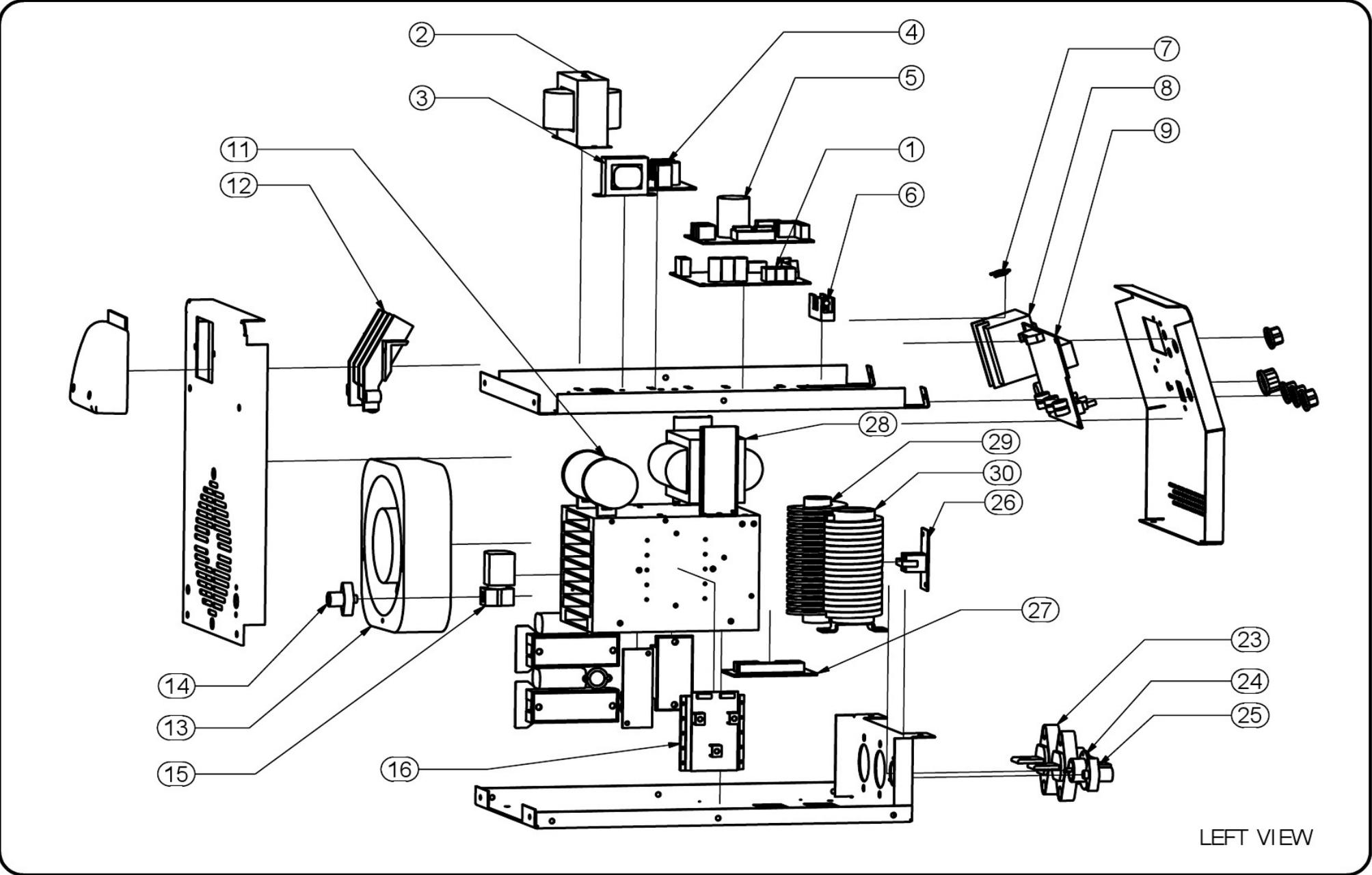
√. If all recommended action have been checked and the problem persists, please contact our service center

INVERTER DC TIG 350LT(220V)



RIGHT VIEW

INVERTER DC TIG 350LT(220V)



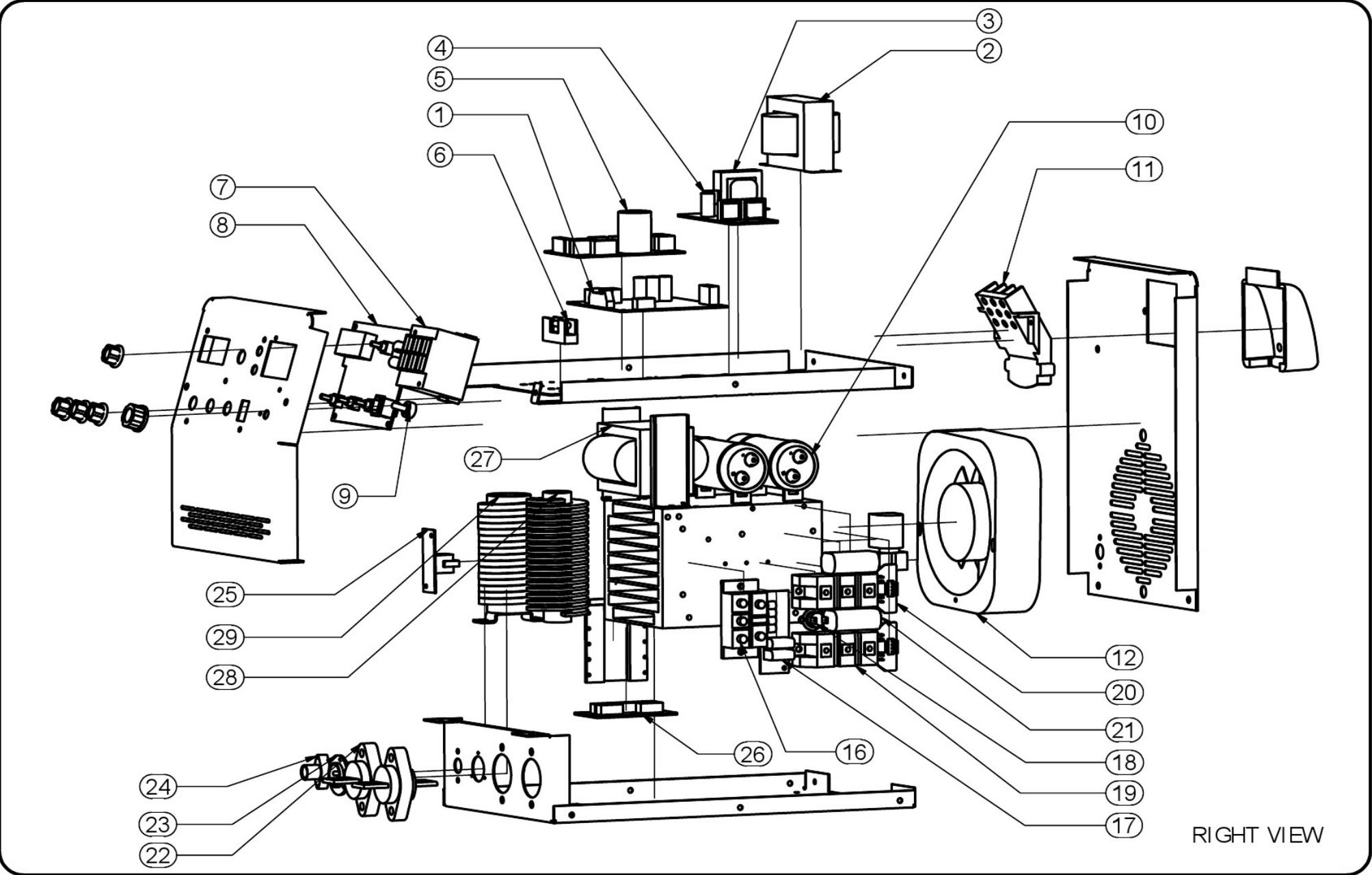
LEFT VIEW

350LT(220V) PARTS LIST

*Description can be changed by LOT number

NO.	PART NAME	DESCRIPTION	QTY.
1	Main PCB	WTM-06	1
2	Control Transformer	7630	1
3	Control Transformer	4114	1
4	PWD PCB	WPD-01	1
5	HF PCB	TME-10A65	1
6	FUSE	3A	1
7	TNR	14D391	3
8	NFB	NDB3-100J4	1
9	Front PCB	WTD-30	1
10	Selector, Switch	SRM125	1
11	Condenser	2200UF/400V	1
12	Terminal	6M/M	1
13	FAN	150T	1
14	Nipple	9/16* 6Φ	1
15	Solenoid Valve	DC24V-1.6Φ	1
16	Output Diode PCB	WDO-10	1
17	Input Bridge Diode	SDH100-16	1
18	TIG IGBT Snubber	WSB-01	1
19	Temp, Switch	N85	1
20	IGBT	LS100A602Z	2
21	IGBT Drive PCB	WGE-01	2
22	MF Condenser	10MF/800	2
23	Terminal, Output	MIDDLE	2
24	Connector	K25-2R	1
25	Nipple	9/16*1/4	1
26	Noise Filter PCB	WTF-01	1
27	Surge PCB	WNF-01	1
28	Main Transformer	350LT TYPE	1
29	Induction coil	350LT TYPE	1
30	Choke Transformer	350LT TYPE	1

INVERTER DC TIG 350LT(380V)



350LT(380V) PARTS LIST

*Description can be changed by LOT number

NO.	PART NAME	DESCRIPTION	QTY.
1	Main PCB	WTM-06	1
2	Control Transformer	7630	1
3	Control Transformer	4114	1
4	PWD PCB	WPD-01	1
5	HF PCB	TME-10A65	1
6	FUSE	3A	1
7	NFB	NDB3-100J4	1
8	Front PCB	WTD-30	1
9	Selector, Switch	SRM125	1
10	Condenser	2200UF/400V	2
11	Terminal	6M/M	1
12	FAN	150T	1
13	Nipple	9/16* 6Φ	1
14	Solenoid Valve	DC24V-1.6Φ	1
15	Output Diode PCB	WDO-10	1
16	Input Bridge Diode	SDH100-16	1
17	TIG IGBT Snubber	WSB-01	1
18	Temp, Switch	N85	1
19	IGBT	LS75A1200Z	2
20	IGBT Drive PCB	WGE-01	2
21	MF Condensor	10MF/800	2
22	Terminal, Output	MIDDLE	2
23	Connector	K25-2R	1
24	Nipple	9/16*1/4	1
25	Noise Filter PCB	WTF-01	1
26	Surge PCB	WNF-01	1
27	Main Transfomer	350LT TYPE	1
28	Induction coil	350LT TYPE	1
29	Choke Transformer	350LT TYPE	1

Thanks for purchasing our machine

Please fill out below form for future reference. This information can be found on the Nameplate of your machine.

Product Name	INVERTER DC TIG ARC WELDER
Model Number	LONGRUN 350LT
Date Manufactured	
Serial Number	
Date Purchased	
Where Purchased	
Where you use	

Whenever you request replacement parts or information on this machine, always supply the information you have recorded above. The date number is especially important when identifying the correct replacement parts.

Complete this form, please fax it to our selling agency in your country or us for warranty statement.



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