

shindaiwa[®]

DGW500DM/GULF
Demonstration Manual



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1. Introduction : Purpose of the manual

Product demo is a crucial step in your sales process. During a demo, you have your prospect's full attention ; it is your time to prove Shindaiwa's real value. This manual is written to make sure you have all the information to run a deal closing demo, and get the most out of time.

2. How to maximize the opportunity

Increase your persuasive power by following 4 tips

Check the check box when you get prepared.

1. Talk your experience

You can be more persuasive when you talk based on your experience.

Use the machine by yourself, so that you can talk what you actually perceived about how the machine actually performs.

2. Show a profit

Capture customer's interest by talking a profit the customer can enjoy.

Examine the industry the customer works in, and identify a profit the machine can offer to them.

3. Ensure preparation

Don't waste an opportunity.

Reconfirm appointment on the previous day.

Don't sacrifice precious time of the customer.

Make sure every demo item is in your bag.

4. Talk the truth










Shindaiwa's high performance is promised within the range shown in the product specifications. Remember that exaggeration may result in complaint and mistrust.

Understand a product specification, and be prepared what Shindaiwa can and can not when you are asked.

3. Guide to welding safety

a) Protective gear

The chart below summarizes the personal protective equipment that can be used when welding.

Check	Items	Protects from
	Welding helmet	Radiation Flying particles, debris Hot slag, sparks
	Goggles	Intense light Irritation and chemical burns
	Respirators	Fumes and oxide
	Fire resistant clothing	Heat, fires Burns Radiation
	Fire resistant aprons	
	Ear muffs	Noise
	Ear plugs	
	Boots	Electrical shock Heat Burns
	Gloves	Fire

b) Avoid high risks

Protect yourself against potential hazards.

1) Protect your eyes and body; arc rays can burn eyes and skin

Wear approved safety glasses with side shields under your helmet.

Wear protective clothing made from flame-resistant materials.

Warn others not to watch the arc.

2) Perform welding in an area with ventilation; fumes and gases can be hazardous to your health.

Work in a confined space only if it is well ventilated.

Be sure the breathing air is safe.

4. Demonstration

a) Shielded metal ark welding: Single/Dual

i) Single

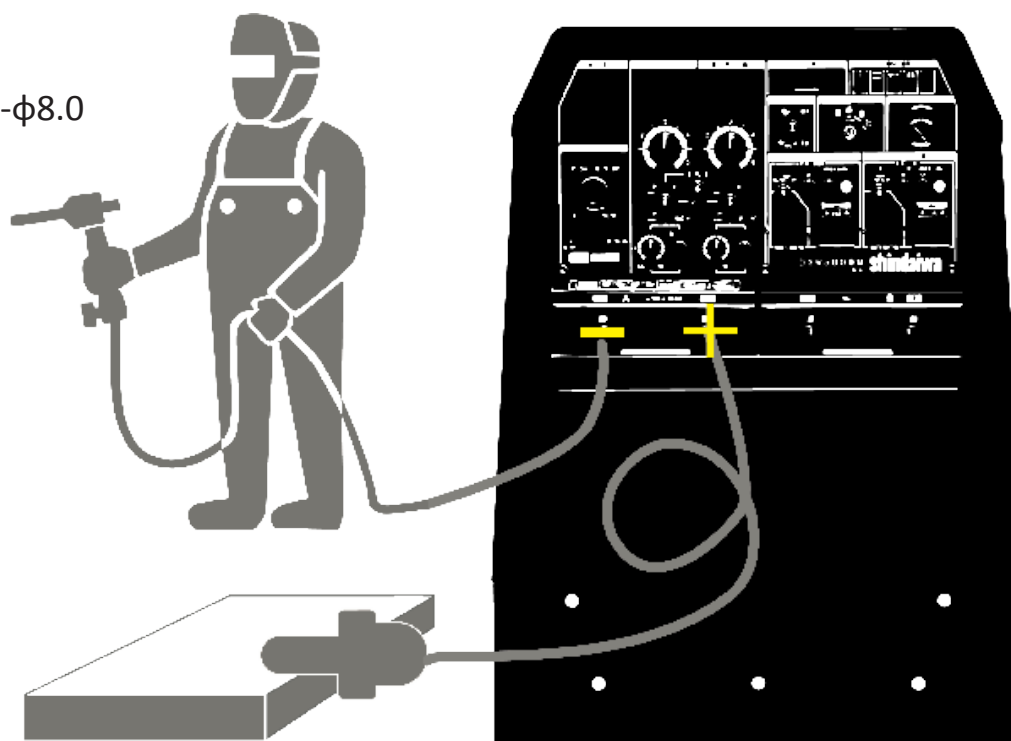
A. Purpose of demo

Show the maximum welding output

Is everything in your bag? Did you ask your client to prepare these items?

Check	Items	Specification
<input checked="" type="checkbox"/>	Welding cable, holder, earth	38sq, 10m x 2
<input checked="" type="checkbox"/>	Steel plate	SS400 flat bar
<input checked="" type="checkbox"/>	Pipe (Beveling)	SS400, T11 x ϕ 165 x L120
<input checked="" type="checkbox"/>	High cellulose stick (6160)	up to ϕ 8.0
<input checked="" type="checkbox"/>	Low hydrogen stick (LB-52)	up to ϕ 8.0
<input checked="" type="checkbox"/>	Lime- titania (E4303)	up to ϕ 8.0

Control panel setting

Stick: $\phi 7.0$ - $\phi 8.0$ 

4. Demonstration

a) Shielded metal arc welding: Single/Dual

ii) Dual

A. Purpose of demo

- 1) Show the maximum welding output
- 2) Show that two welding outputs does not interfere each other

👉 Reference P25 a. RealDual®

B. Demonstration procedure

- 1) Set a partation between welder A and B, so that they can not see each other.
- 2) Welder A repeats ON/OFF every 10 seconds to show that A does not interfere output B.
- 3) Show the versatility

👉 Reference P27 b. Multi task



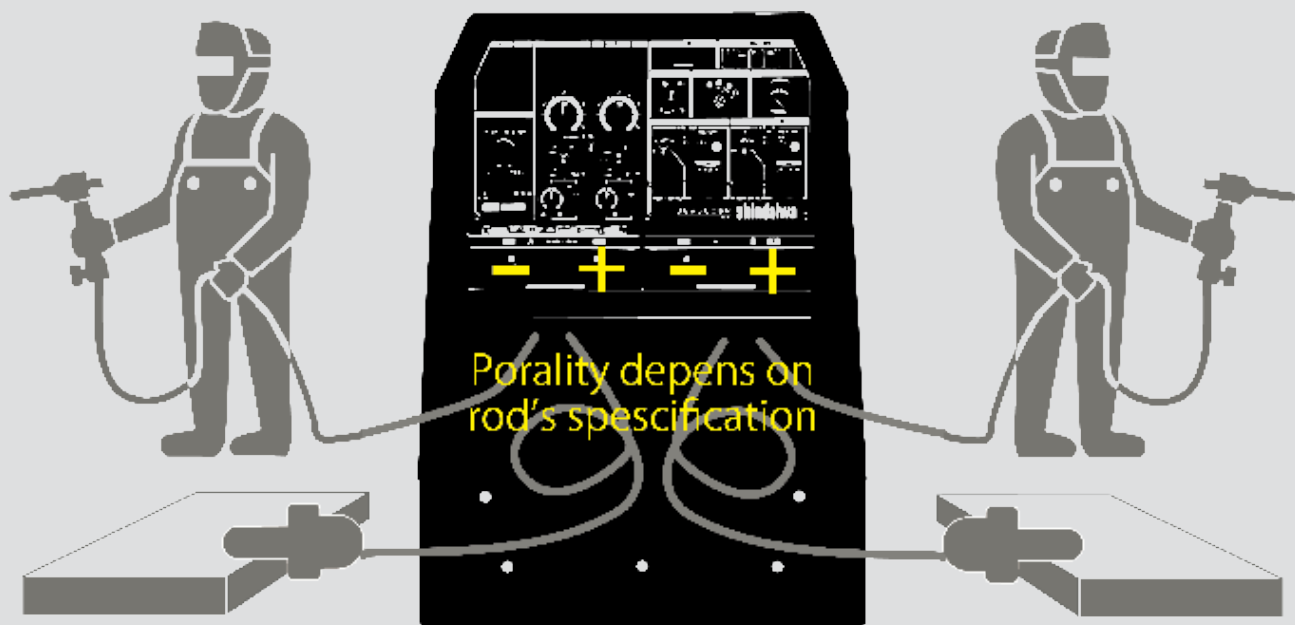
Control panel setting



Is everything in your bag? Did you ask your client to prepare these items?

Check	Items	Specification
<input checked="" type="checkbox"/>	Welding cable, holder, earth	38sq, 10m x 2
<input checked="" type="checkbox"/>	Steel plate	SS400 flat bar
<input checked="" type="checkbox"/>	Pipe (Beveling)	SS400, T11 x ϕ 165 x L120
<input checked="" type="checkbox"/>	High cellulose stick (6160)	up to ϕ 6.0
<input checked="" type="checkbox"/>	Low hydrogen stick (LB-52)	up to ϕ 6.0
<input checked="" type="checkbox"/>	Lime- titania (E4303)	up to ϕ 6.0






Cable and stick



b) Self shield: Single/Dual

A. Purpose of demo

- 1) Show stable arc against the wind
- 2) Show work efficiency; no need to change rod
- 3) Show easy toach operation

Check	Items	Specification
	Welding cable, holder, earth	38sq, 10m x 2
	Steel plate	SS400 flat bar
	Pipe (Beveling)	SS400, T11 x ϕ 165 x L120
	Wire feeder	up to ϕ 6.0
	Wire	ϕ 1.7 - 2.0

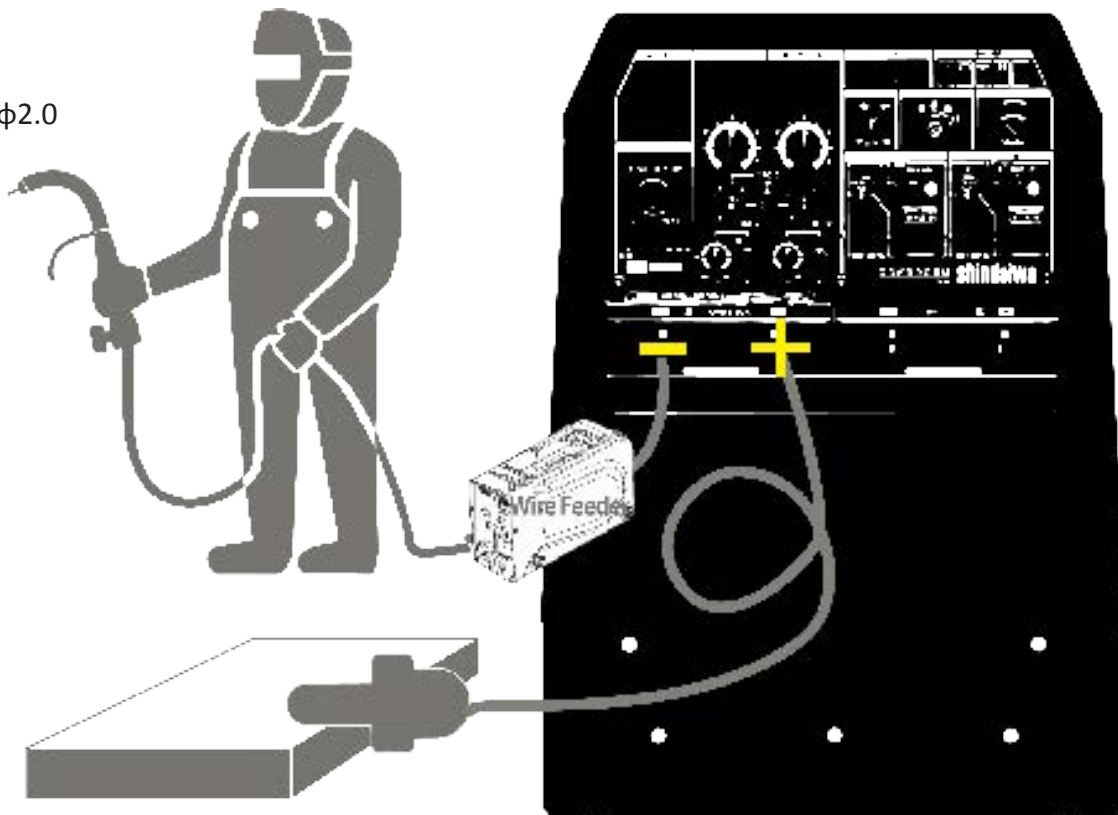
i) Single

Control panel setting



Cable and wire

Wire
 $\phi 1.7 - \phi 2.0$



3. Demonstration

b) Self shield: Single/Dual

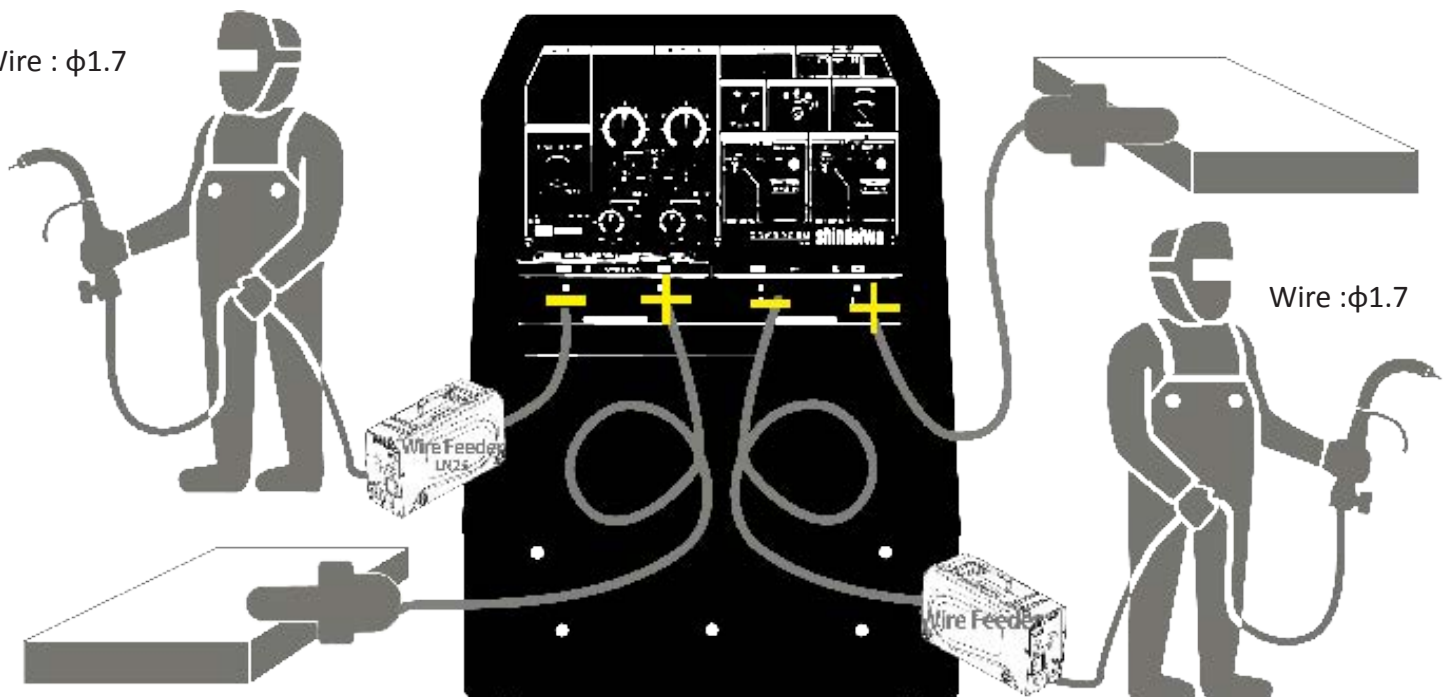
ii) Dual

Control panel setting



Cable and wire

Wire : $\phi 1.7$



c) Gouging

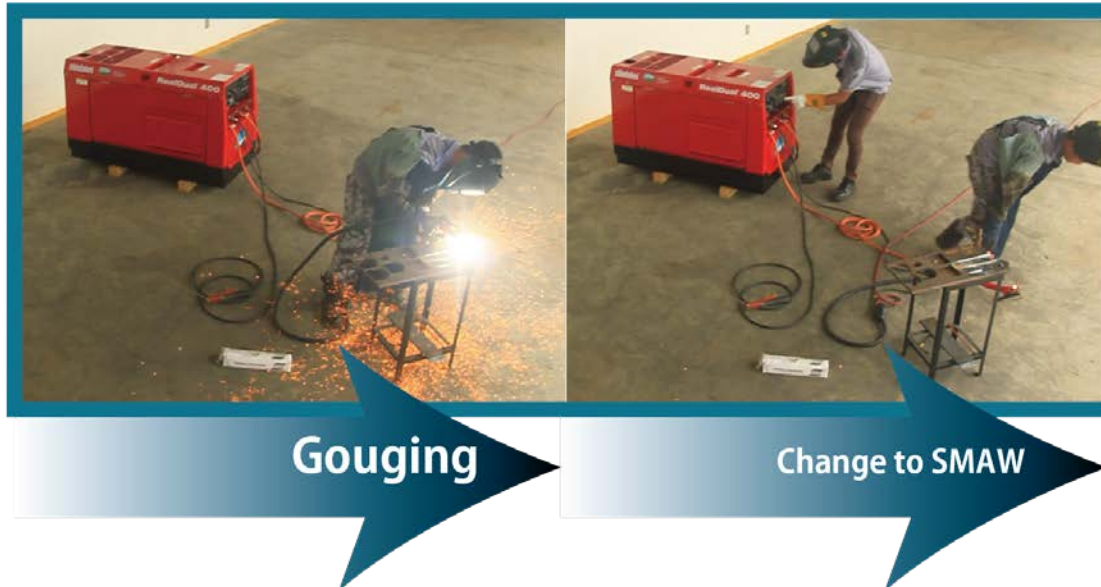
A. Purpose of demo

1) Show shielded metal arc welding (SMAW) by output B right after gouging by output A



Reference P16 c) Gouging

B. Procedure



Is everything in your bag? Did you ask your client to prepare these items?

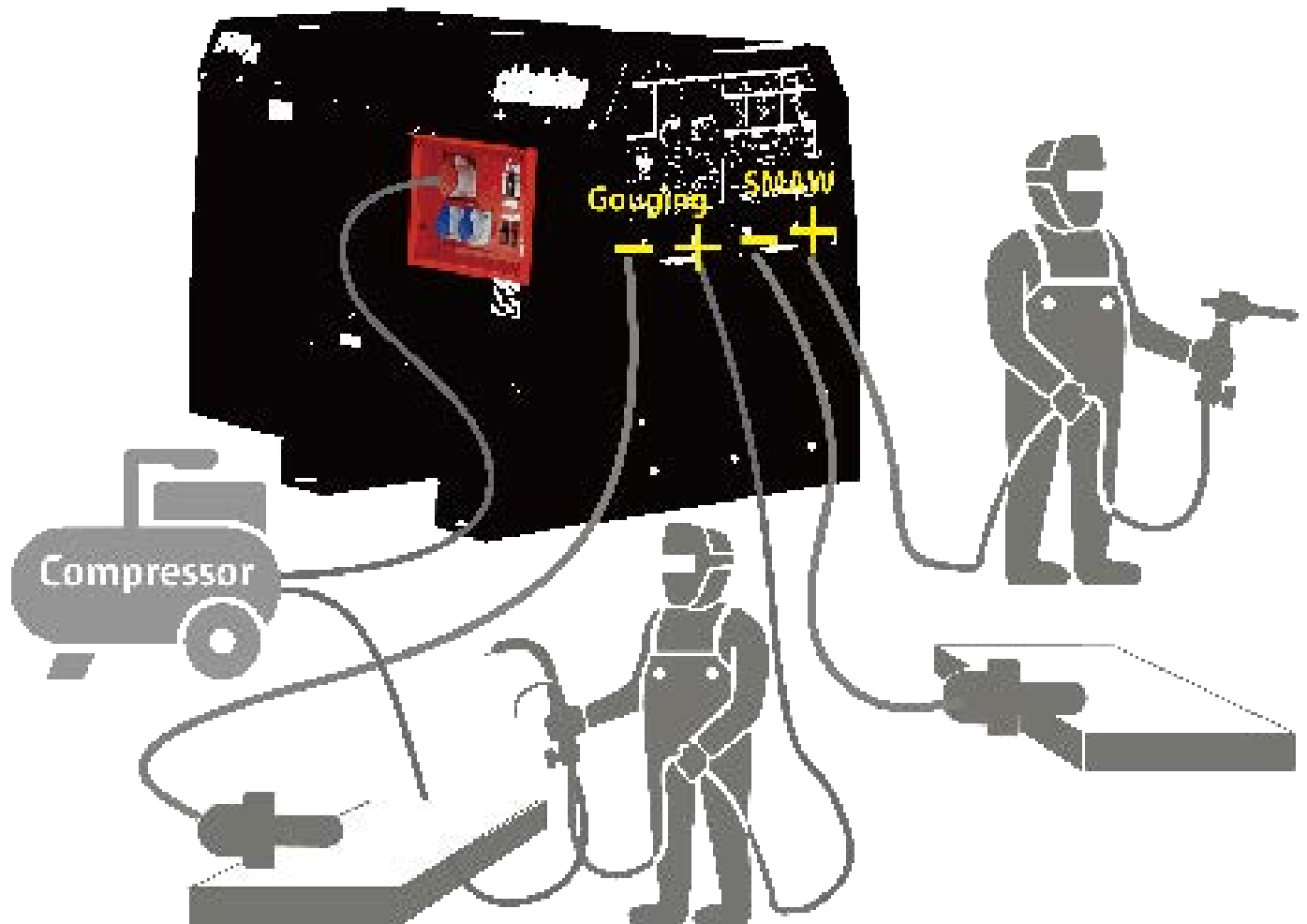
Check	Items	Specification
<input checked="" type="checkbox"/>	Gouging rod	$\phi 5.0$
<input checked="" type="checkbox"/>	Steel plate	SS400 flat bar
<input checked="" type="checkbox"/>	Gouging holder	SS400, T11 x $\phi 165$ x L120
<input checked="" type="checkbox"/>	Air hose	up to $\phi 6.0$
<input checked="" type="checkbox"/>	Compressor	Air pressure 5-7kg/cm ² Air flow 0.6-0.8m ³ /min
<input checked="" type="checkbox"/>	Power Source for compressor	3.7kW

Control panel setting



SMAW

Cable and wire



a. Specifications

Model		DGW500DM		
Generating Method		Rotating Field		
OPERATION		SINGLE	DUAL	
Welding Generator	CC MODE	Rated Current (A)	480	230
		Rated Voltage (V)	39.2	29.2
		Duty Cycle (%)	60	80
		Current Adj. Range (A)	60 – 500	30 – 280
		Welding Rod (φ)	2.6 – 8.0	2.0 – 6.0
	CV MODE	Gouging Rod (φ)	3.2 – 9.5	3.2 – 5.0
		Rated Current (A)	480	230
		Rated Voltage (V)	39.0	22.5
		Duty Cycle (%)	60	80
		Voltage Adj. Range (V)	14 – 40	14 – 29
Welding Wire (φ)	0.6 – 2.4	0.6 – 2.0		
Rated Speed (min ⁻¹)		3000		
No Load Voltage (V)		MAX 55		
AC Generator	Rated Frequency (Hz)	50		
	Rated Speed (min ⁻¹)	3000		
	Phase	1-Phase	3 Phase	
	Rated Voltage (V)	220	380	
	Power Factor	1.0	0.8	
	Rated Output (kVA)	6.6	13.2	
Rating		Continuous		
Model		Kubota V1505		
Type		Vertical, Water-Cooled 4-Cycle Diesel Engine		
Engine	Displacement (L)		1.498	
	Rated Output (kW/min ⁻¹)		29.0 / 3000 (Gross Intermittent)	
	Fuel		ASTM No.2 Diesel Fuel or Equivalent	
	Lubricant Oil		API Class CD or higher	
	Lubrication Oil Volume (L)		6.0 (Effective 2.0)	
	Cooling Water Volume (L)		5.6 (Sub Tank Capacity 0.6 L Included)	
Starting Method		Starter Motor		
Battery		75D31R		
Fuel Tank Capacity (L)		83		
Dimension	Length (mm)	1680		
	Width (mm)	700		
	Height (mm)	950		
Dry Weight (kg)		673		

b. Field of applications

Excellent

Good

Construction		Rental	
Fabrication		Civil engineering	
Piping		Service truck	
Mining		Maintenance	
Rail road		Repair	
Offshore		Farming	

c. Welding mode

Excellent

Good

Cellulose rod	Low hydrogen rod	Scratch TIG	Gouging
			Up to 9.5mm

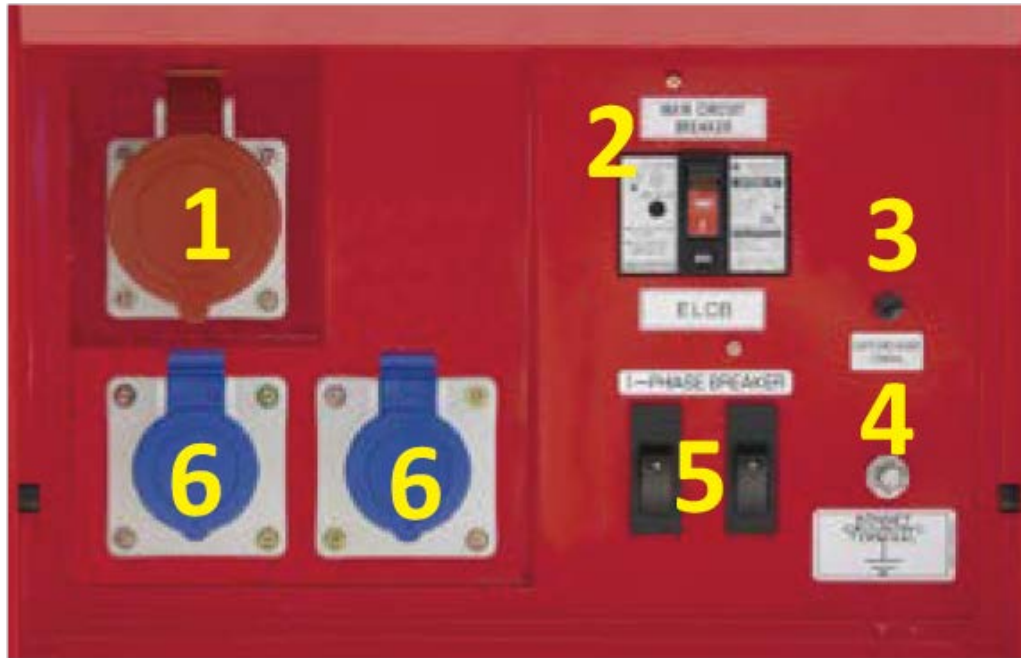
d. Part name

i) Control panel



- | | |
|--------------------------------|---------------------------------------|
| 1. AC Meter | 12. Starter Switch |
| 2. DC Meter | 13. Fuel Meter |
| 3. Output Control Dial | 14. Remote Control |
| 4. Single/Dual Selector Switch | 15. 14-Pin Connector |
| 5. CV/CC Selector Switch | 16. Wire Feeder Voltmeter Switch |
| 6. Arc Control Dial | 17. 42V/115 Selector Switch |
| 7. Rod Selector Switch | 18. Circuit Protector For Wire Feeder |
| 8. Emergency Stop Switch | 19. Weld Terminals Switch |
| 9. Hour Meter | 20. Welding Terminal A |
| 10. Monitor Lamp | 21. Welding Terminal B |
| 11. Idle Control Switch | |

ii) AC output panel



- | | |
|-----------------------------|------------------------------|
| 1. 3-P Receptacle | 4. Bonnet Grounding Terminal |
| 2. Main Breaker | 5. 1-P Breaker |
| 3. Earth Grounding Terminal | 6. 1-P Receptacle |

iii) Right side



1. Fuse (60A, 20A)
2. Battery
3. Air Cleaner
4. Sub Tank
5. Fuel Inlet
6. Water Separator
7. Fuel Drain Plug
8. Water Drain Plug

iv) Left side

1. 3-P Receptacle
2. 1P Receptacle
3. Main Breaker
4. 1P Breaker
5. Earth Grounding Terminal
6. Bonnet Gousing Terminal

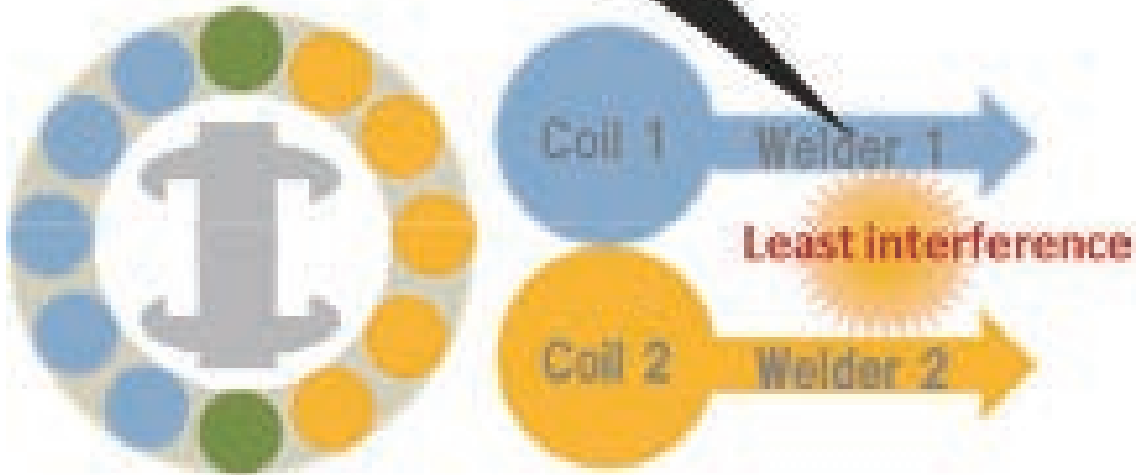
a. RealDual®



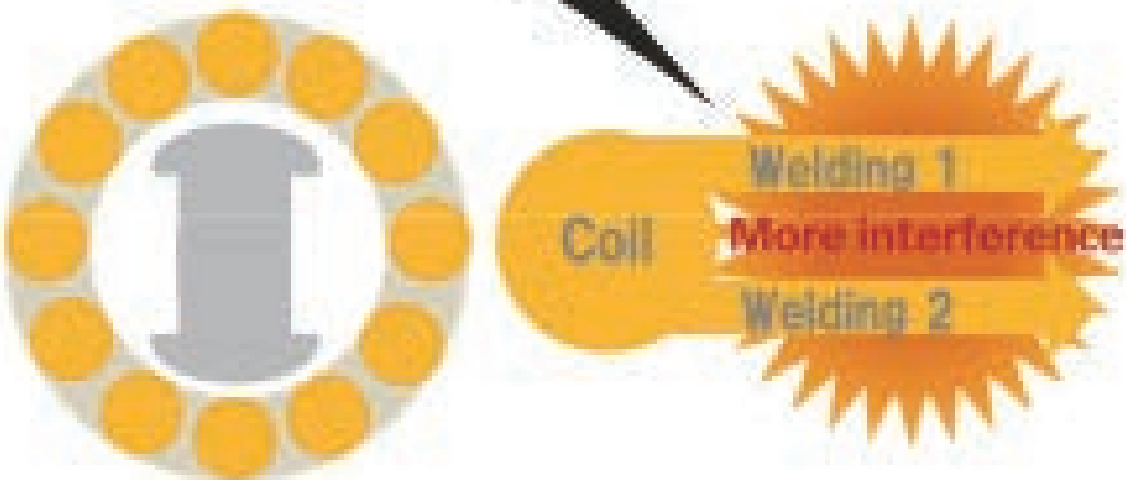
RealDual®

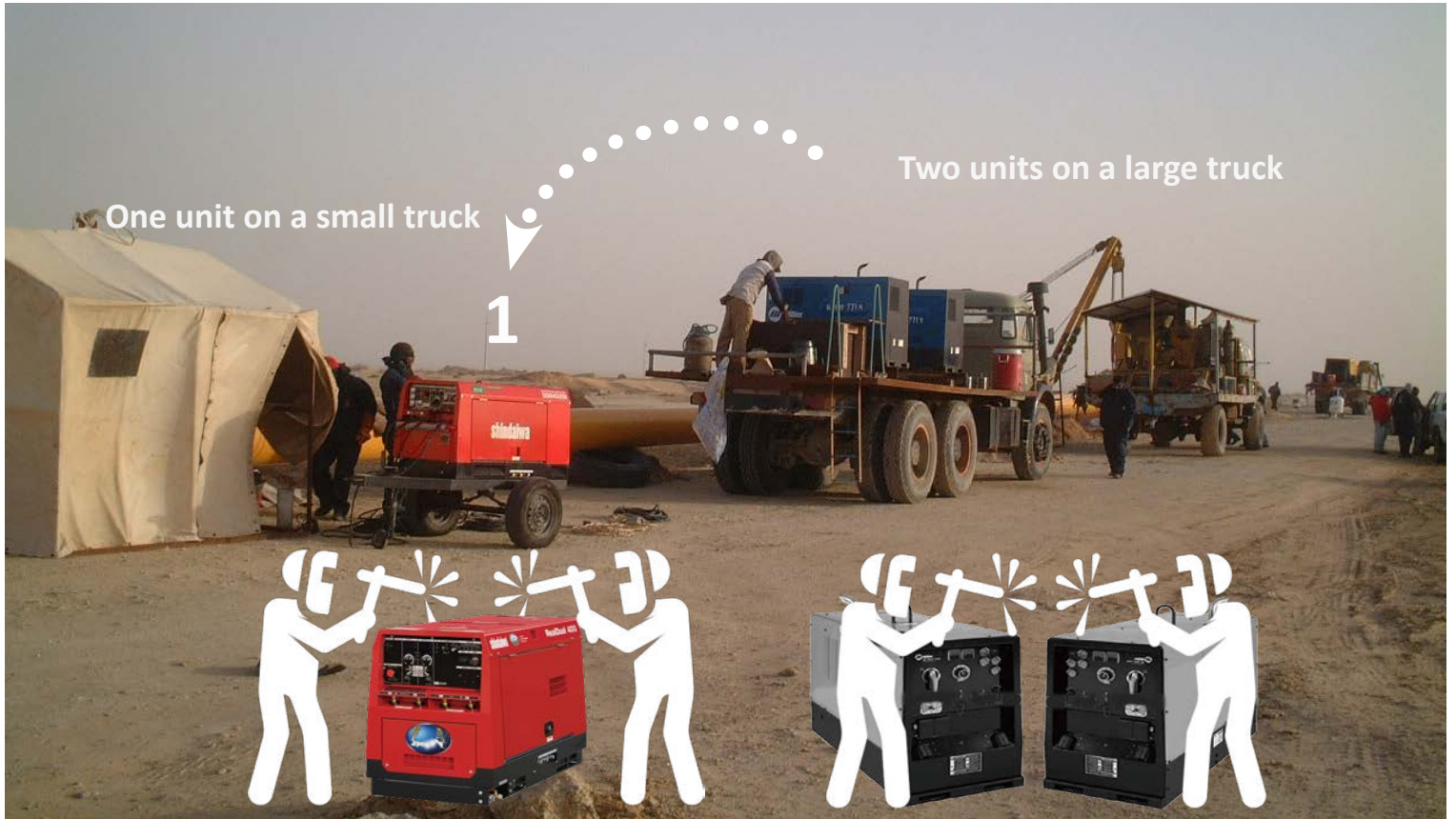
Shindaiwa can deliver two welding arcs in one machine, allowing two operators to perform welding tasks at the same time.

Shindaiwa's alternator delivers two independent welding output.



Other Brands: Dual welding output interferes with each other.





b. Multi task

i) Multiple power supply



iii) SMAW right after gouging



Gouging

ii) Two welding output in one machine



Change to SMAW

SMAW

d. Surface coating: Electro deposit & powder coating



Electrodeposition Coating

Best solution for covering edges with uniform thickness, which has been difficult with previous technologies.

Excellent as basecoat and improves corrosion-resistance of the products.



Powder Coating

External colors are applied by spraying powder over the base layer, creating a hard finish that is tougher than conventional paint.

Corrosion-resistance is further reinforced, and the quality of external appearance preserves even in the extremely harsh environment.



Two welding machines being used on a rig located offshore for about two years. Shindaiwa welder (upper) is almost free from rust whereas the other brand (under) is spotted with rust.

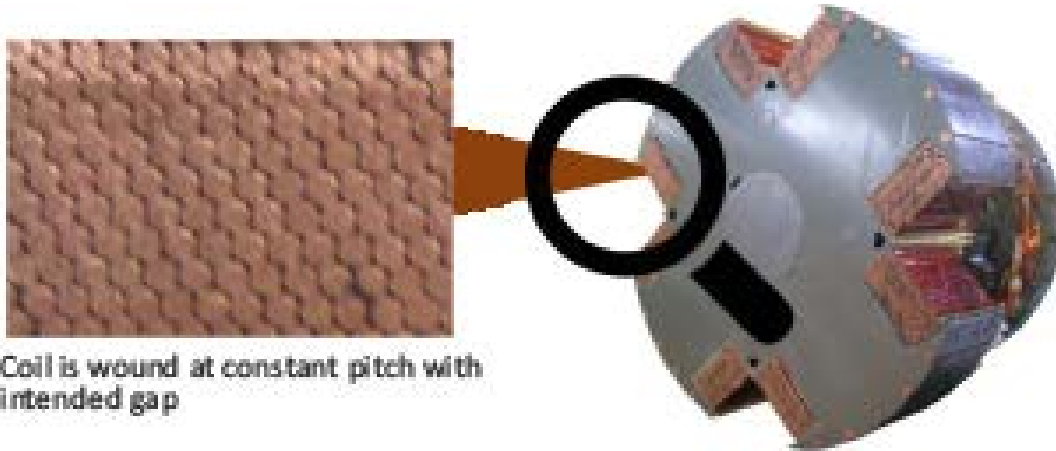


Two machines exposed offshore for two years.

Shindaiwa endures in a humid environment

d. Reliable alternator

i) Coil winding



Coil is wound at constant pitch with intended gap

Appropriate gap is intentionally given so that varnish completely coats wound wire, thereby increasing durability against high rotation speed.

ii) Varnish application



**The 1st protection
Deep to the center**
Fill winding interlayer with varnish deep to the center. Varnish bundles the coils together and improves durability.



**The 2nd protection
The surface of coil layer**
Coat the surface of coil layer. The second varnish reinforces the rotor, and offers protection against environmental factors such as dust and moisture.



**The 3rd protection
The entire alternator**
Finish coat to the entire alternator. The final varnish further enhances durability against moisture and water, and ensures excellent performance under extreme weather conditions.

iii) R&D history

SHINDAIWA ALTERNATOR R&D HISTORY

2000

Several years of field tests, many malfunctions, and frequent reported trouble



Alternator trouble




DUSTY

Improvement

Concentrated R&D efforts for three directions:






Now

Structural improvements, such as dust prevention, were implemented throughout the world



almost ZERO trouble




DUSTY

Over 50 years of R&D history

iv) Accumulated technology



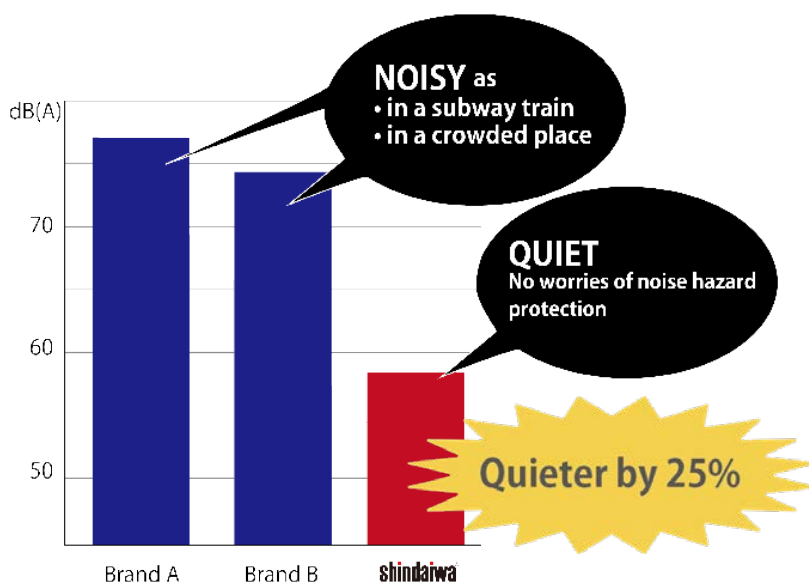
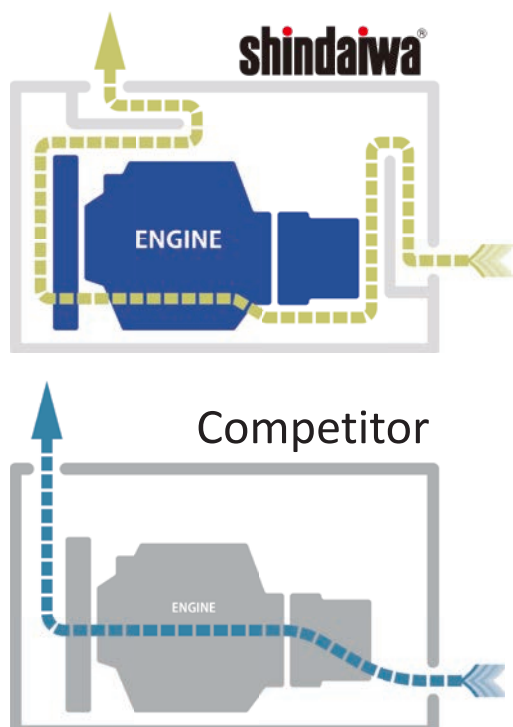
Alternator Technology emerged in 1962

e. Quiet



WHY QUIET?

Skillfully designed airflow in the machine offers ULTRA QUIET operation.



f. Compact

shindaiwa®

Save logistic cost!

The diagram illustrates a single truck carrying a compact generator. A green arrow points from a boat (representing shipping) to a single truck. To the left, two workers are shown with tools and a generator. A large yellow starburst contains the text 'Save logistic cost!'.

Competitor

More than double logistic cost!

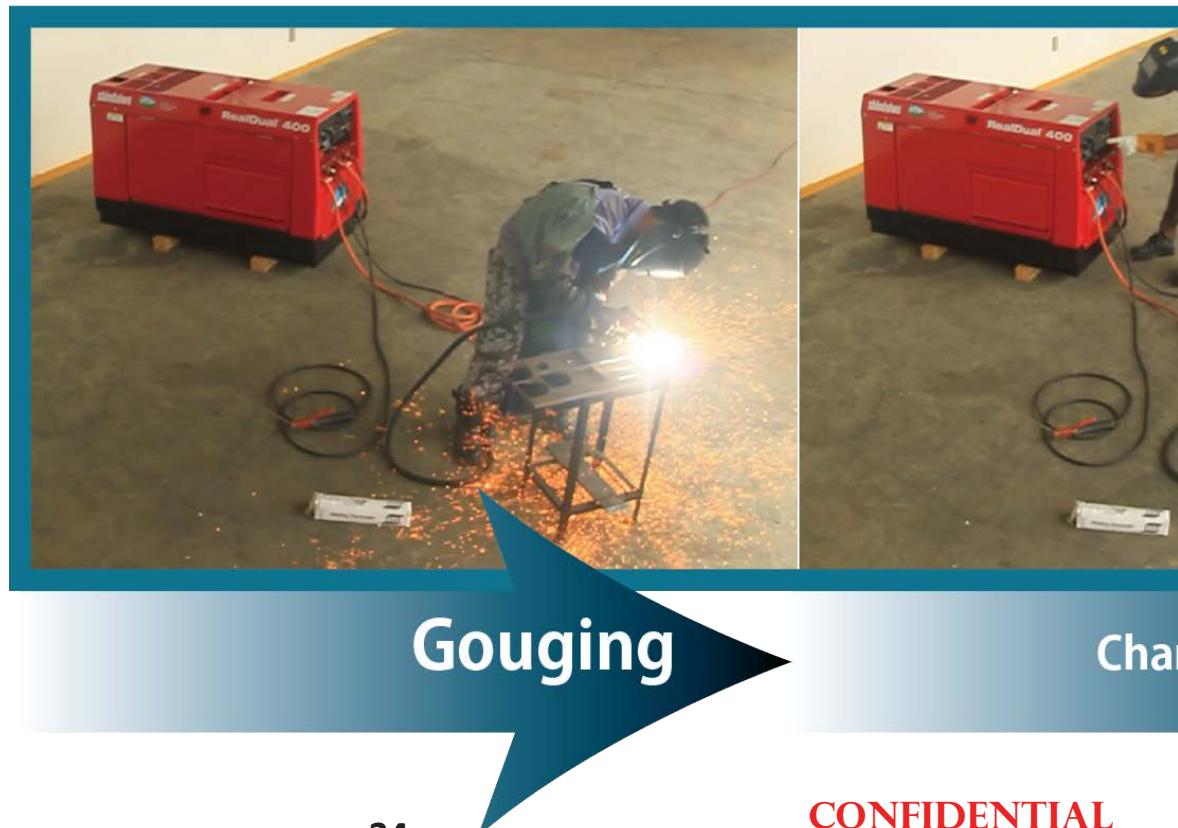
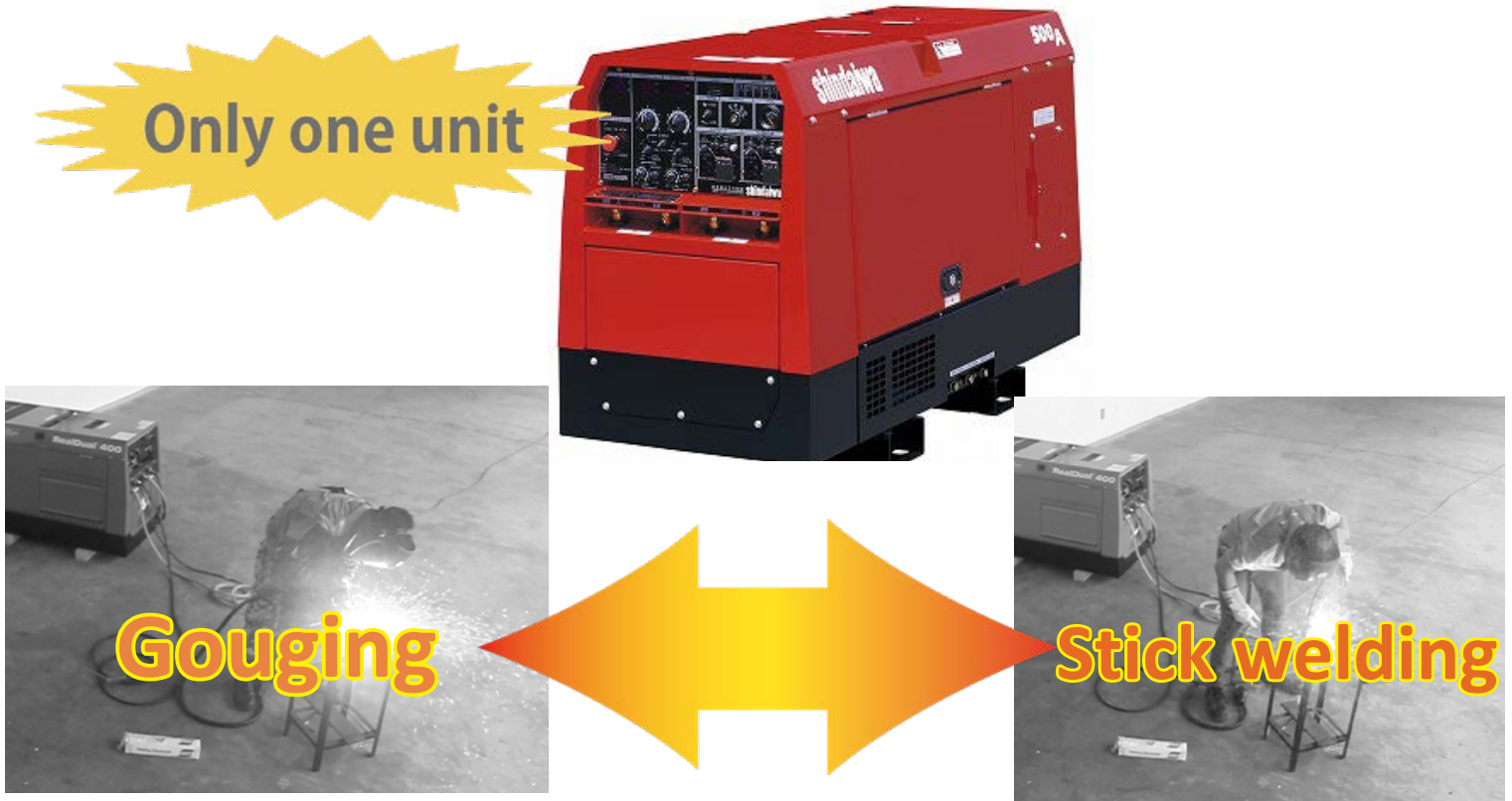
The diagram illustrates a competitor's larger generator. A green arrow points from a boat to multiple trucks. To the left, two workers are shown with tools and a generator. A large blue starburst contains the text 'More than double logistic cost!'.



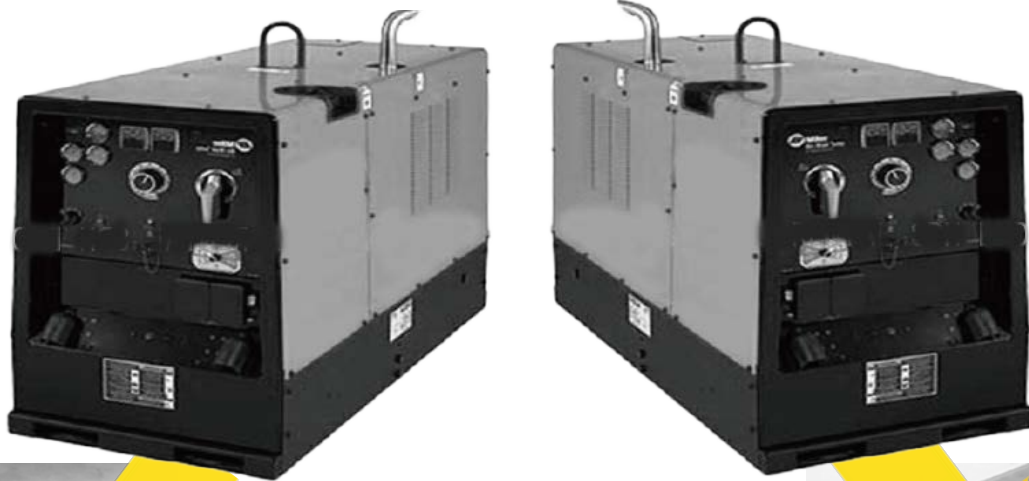
Chapter 3. User Benefit

a. Gouging capability

shindaiwa[®] Shindaiwa delivers shielded metal arc/stick welding arc/ SMAW even right after gouging. It means that one Shindaiwa can assume double functions.



COMPETITOR Competitor can hardly afford to deliver shielded metal arc/stock welding arc/SMAW right after performing gouging. It means that you need two units to perform each task.



Need 2 units!!

Difficult to perform stick welding right after gouging



change to SMAW

SMAW

b. Shorter construction period

i) Great work efficiency brought by quiet work environment



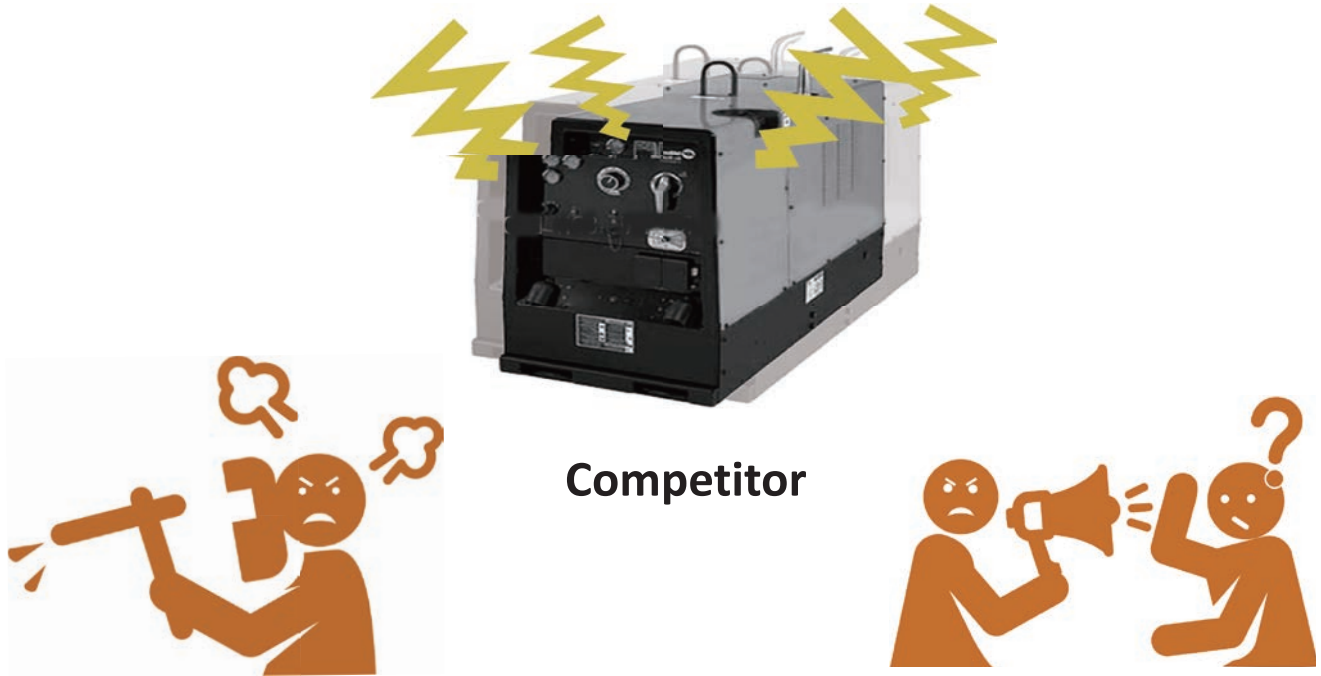
ii) No worries about complaint



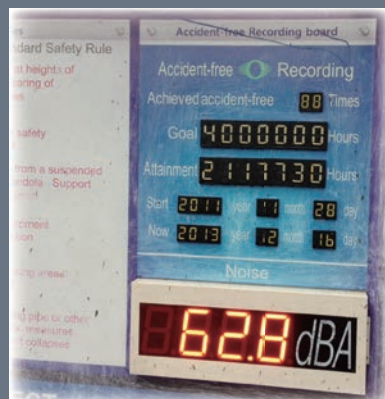
Increasing demand for quiet operation

Construction sites are more often near existing residential accommodation, where construction companies are more and more required to control any nuisance caused by noise by using quieter machinery or sound insulation walls.

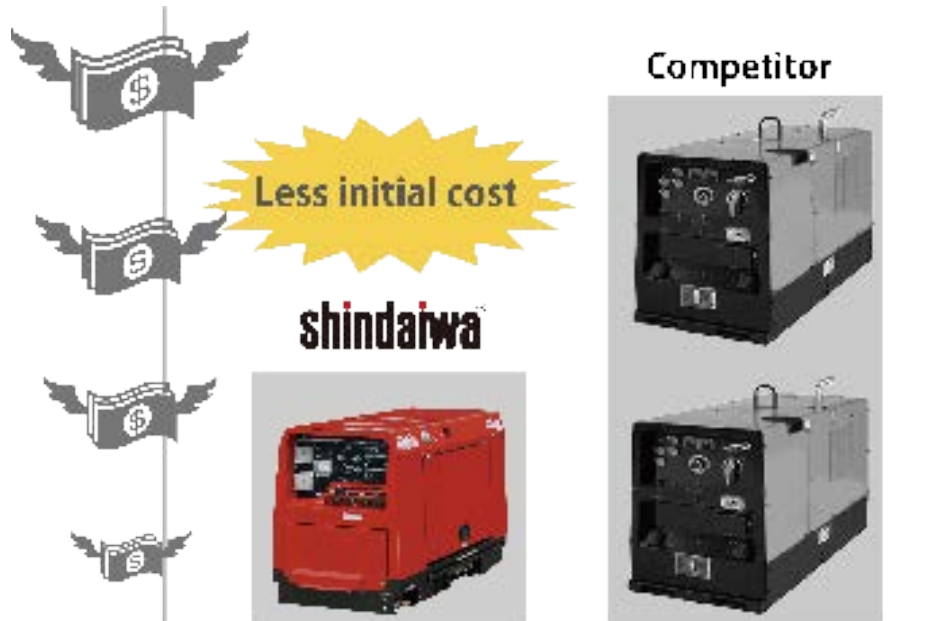
Shindaiwa machinery can relieve anxiety about complaints from the residents or extra effort for sound attenuation.



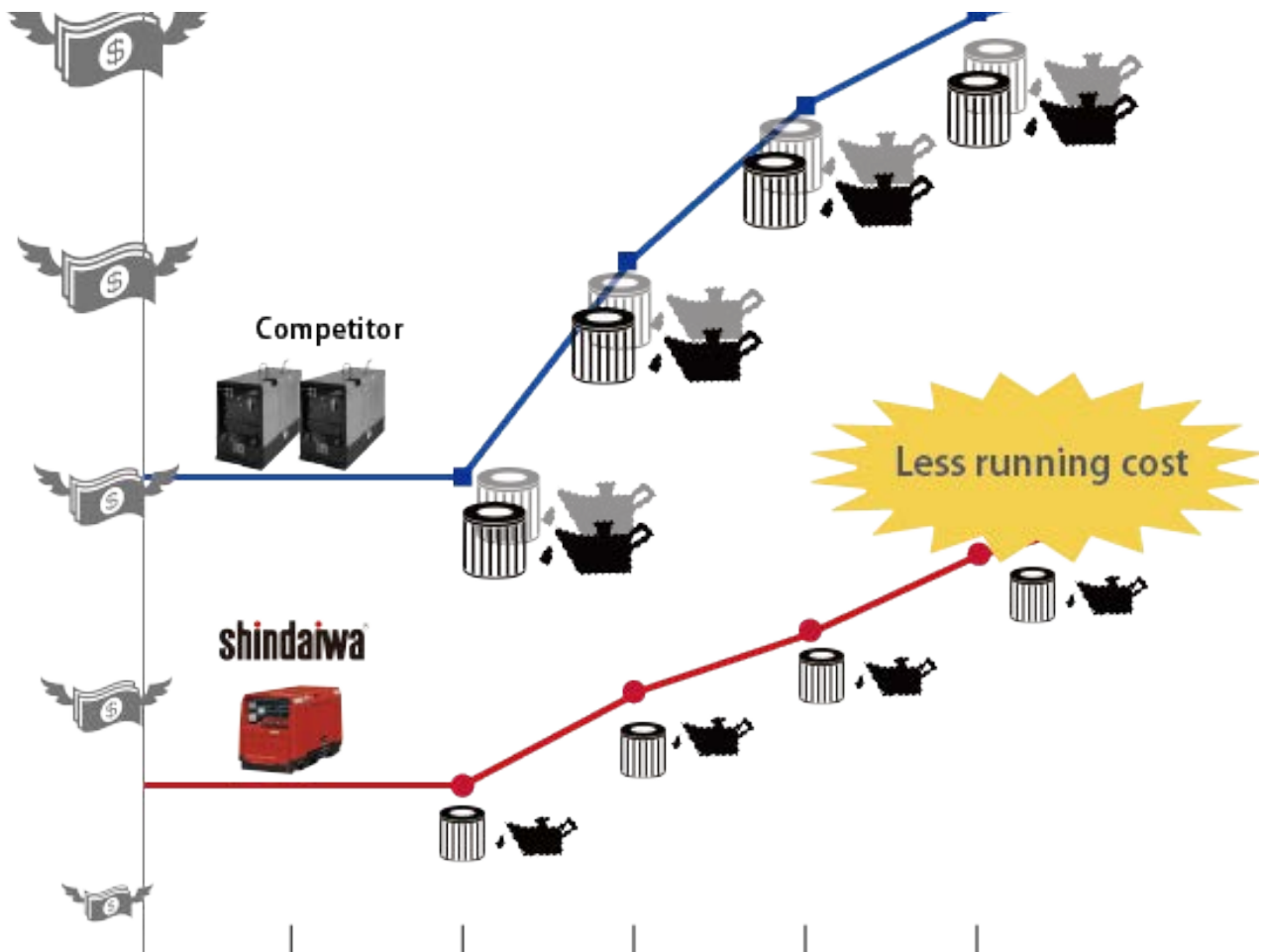
A noise monitor installed in a construction site in Singapore



c. Less initial cost



d. Less running cost



e. Save logistic cost

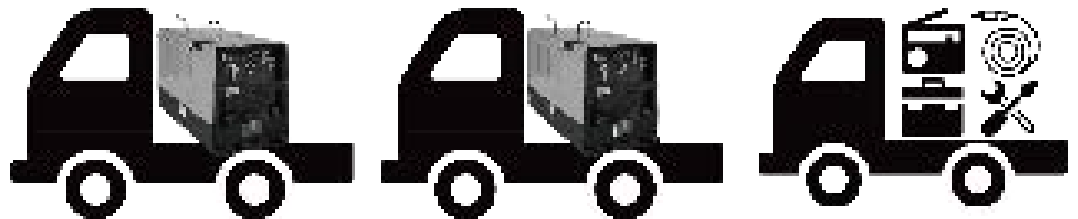
Less truck

Less logistic cost

shindaiwa



Competitor



Less storage space



FOOTPRINT



FOOTPRINT

Spec comparison chart		DEMOSUDOMULT	Demco DDM400S	MILER B & BLUE 500X	Lincoln B & Red 500
CC	Single	Enter Current	100A	100A	500A
		Enter Voltage	29.2V	30.7V	30V
		July Cycle	97%	95%	93%
		Current Adj. Range	50-500A	10-500A	55-500A
		Welding Rod	12.1 to 6.1mm	9.2 to 9.3mm	12.1 to 6.1mm
	Sealing Rod	12.1 to 6.1mm	No data	up to 40mm	
	Local	Enter Current	200A	NA	NA
		Enter Voltage	29.2V	NA	NA
		July Cycle	97%	NA	NA
		Current Adj. Range	30-200A	NA	NA
Welding Rod		12.1 to 6.1mm	NA	NA	
CV	Single	Sealing Rod	12.1 to 6.1mm	NA	NA
		Enter Current	450A	NA	NA
		Enter Voltage	39.0V	NA	NA
		July Cycle	97%	NA	NA
		Current Adj. Range	14-40V	NA	NA
	Local	Welding Wire	12.1 to 2.4mm	NA	Option
		Enter Current	250A	NA	NA
		Enter Voltage	22.0V	NA	NA
		Welding Wire	12.1 to 2.4mm	NA	Option
		Enter Current	250A	NA	NA

	July Case	90%	N/A	N/A	N/A
	Current Adj. Range	14-25%	N/A	N/A	N/A
	Welding Wire	φ0.8-2.0mm	N/A	N/A	N/A
AC Generator	3 Phase (30-Hz)	10-28kVA	N/A	N/A	N/A
	Voltage	380V	N/A	N/A	N/A
	Outlet	Round 3 pin x1	N/A	N/A	N/A
Lignite	1 Phase (30-Hz)	6-6kVA	1.1-4kVA	4-6kVA	2.4-3.6kVA
	Voltage	220V	<100-240V	<200-240V	120-240V
	Outlet	Round 3 pin x2	N/A	SPC x1	NEMO/EURO
Cables	Model	Kubota V1605	Kubota P-703	Perkins 4024D-22	Perkins 700-13
	Output	<408000	164000	221600	280000
	Fuel Tank Capacity	63l	42l	66l	76l
	Dimensions length	<680mm	1060mm	1050mm	1624mm
	Width	760mm	800mm	724mm	718mm
	Height	660mm	870mm	1030mm	957mm
	Wt	<17MS	0.876TMS	1.176TMS	1.118M2
	Dry weight	613kg	432kg	726kg	507kg
	VRD	N/A	N/A	N/A	N/A
	Emergency Stop Button	✓	N/A	N/A	N/A
Restart	✓	N/A	✓	✓	
Process	✓	N/A	N/A	N/A	
Arc Fault	✓	N/A	✓	✓	
Spill Containment	N/A	N/A	N/A	N/A	
Control System	Thyristor	IGBT	IGBT	IGBT	Not IGBT

a. Japanese Rental Company



	shindaiwa[®]	COMPETITOR
Control	Thyristor	IGBT (Inverter)
Heat-resistance	Strong	Sensitive
Parts structure	Simple	Complicated
Parts price	Less expensive	More expensive

b. Indonesia-Piping



SHINDAIWA REPLACEMENT HISTORY

Several years ago Now

More than 200 units of Shindaiwa

WAREHOUSE

WAREHOUSE

Chapter 7. Service Training

a. Qualified skill of service staff

After sales service such as repair and maintenance are provided by qualified staff who are trained by Yamabiko Corporation, Shindaiwa brand manufacturer.

Service training program



Certificate of the omlpletion of the training

Details of Bronze (basic) training



THE PROGRAM

Trustful MONOZUKURI or Japanese Craftsmanship: 4 hours

Yamabiko, who started business in 1962 as a manufacturer of a small motor, is proud of extensive know-how and experience with over 50 years of history behind it. A guided factory tour shows you where YAMABIKO's reliability comes from.

● Factory Tour 1 : Yamabiko Engineering (YBE)

YBE is a production base of the components for Shindaiwa branded products which includes top cover and front cover of the welder and generator. With a guided tour, visitors can see that the accuracy in component production is realized by integration of accumulated experience and state-of-the-art appliances.

● Factory Tour 2 : Yamabiko Hiroshima Factory (YBK)

YBK has in-house production system. Components manufactured in YBE are routed to YBK for surface treatment, assembly and down to quality inspection. As you explore such sections as *Alternator Production*, *Surface Treatment*, and *Assembly*, you will find our initiatives for quality improvement and quality management.

Pursue of Customer Satisfaction: 5 hours

The expected learning outcome is quick and correct service delivery to the customer. A classroom lecture covers topics listed below, ensuring that the participants will be able to carry out his/her mission in accordance with Yamabiko service policy.

- Service framework and policies for industrial machinery
- Daily and regularly scheduled check-ups / maintenances
- Parts supply: Delivery time and recommended stock quantity
- Basic operation
- Quality defect report
- Spare parts: Receiving and placing order system

Basic Structure of Industrial Machinery: 12 hours

A "hands-on" approach to 'learn by doing'. By disassembling/reassembling machines, participants will get an insight into the unit in terms of its function and product characteristics.

- Using real model in practical exercises, this session ensures acquisition of comprehensive knowledge about basic structure of the unit and trouble shooting.
- This session also offers opportunities for participants to talk directly to an instructor to clear their uncertainty related to sales and services, enabling everyone in the classroom to share questions and experiences.

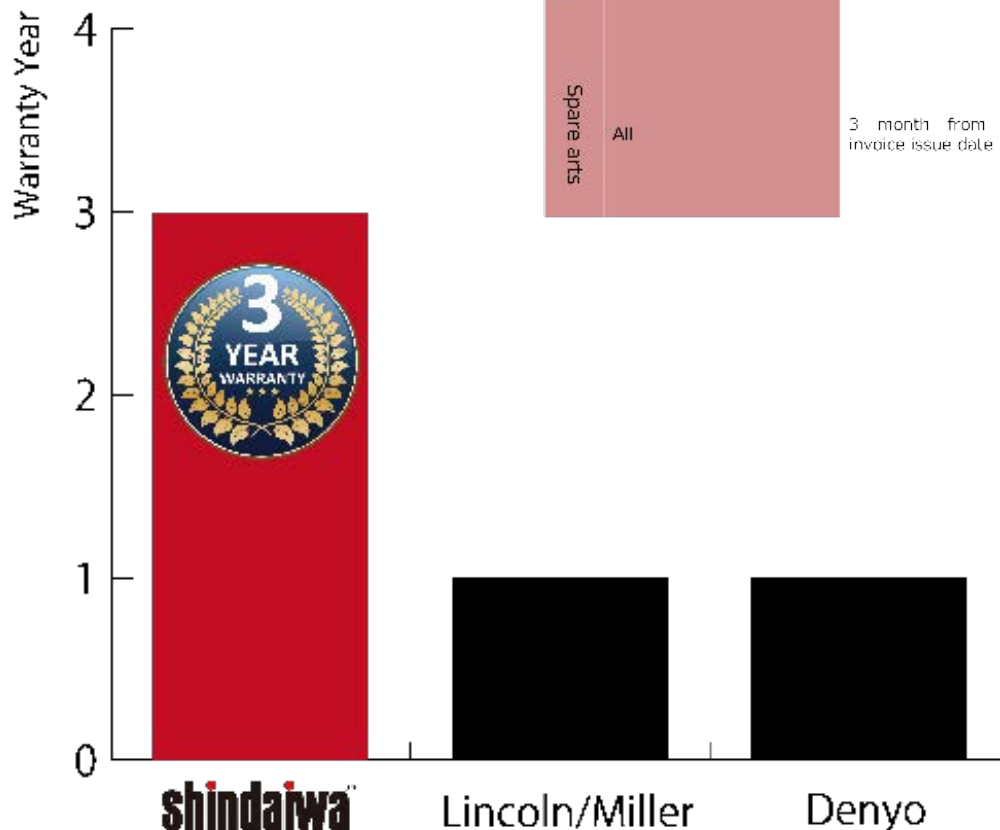
b. 3 year warranty



3-Year Warranty means our confidence in the quality

Quality of Shindaiwa brand product is endorsed by 3-year warranty.

	Applicable Model	Warranty Term	Applicable Parts
Component except for engine parts	shindaiwa Diesel Generator Diesel Welder	3 yeals (or 3,000 hours)	<ul style="list-style-type: none"> ➤ Rotor ➤ Exciter rotor ➤ Stator ➤ Exciter stator ➤ Print circuit board ➤ Reactor ➤ Rectifier ➤ Thyristor ➤ Earth leakage circuit breaker ➤ Main breaker ➤ Switched ➤ Sensors ➤ Body parts ➤ Control panel
	Kubota Kubota Engine components	2 years (or 2,000 hours)	All engine components
Engine Components	ISUZU Isuzu Engine components	1 year (or 1,000 hour)	All engine components
Spare arts	All	3 month from the invoice issue date	All except for consumable parts defined by the warranty contract



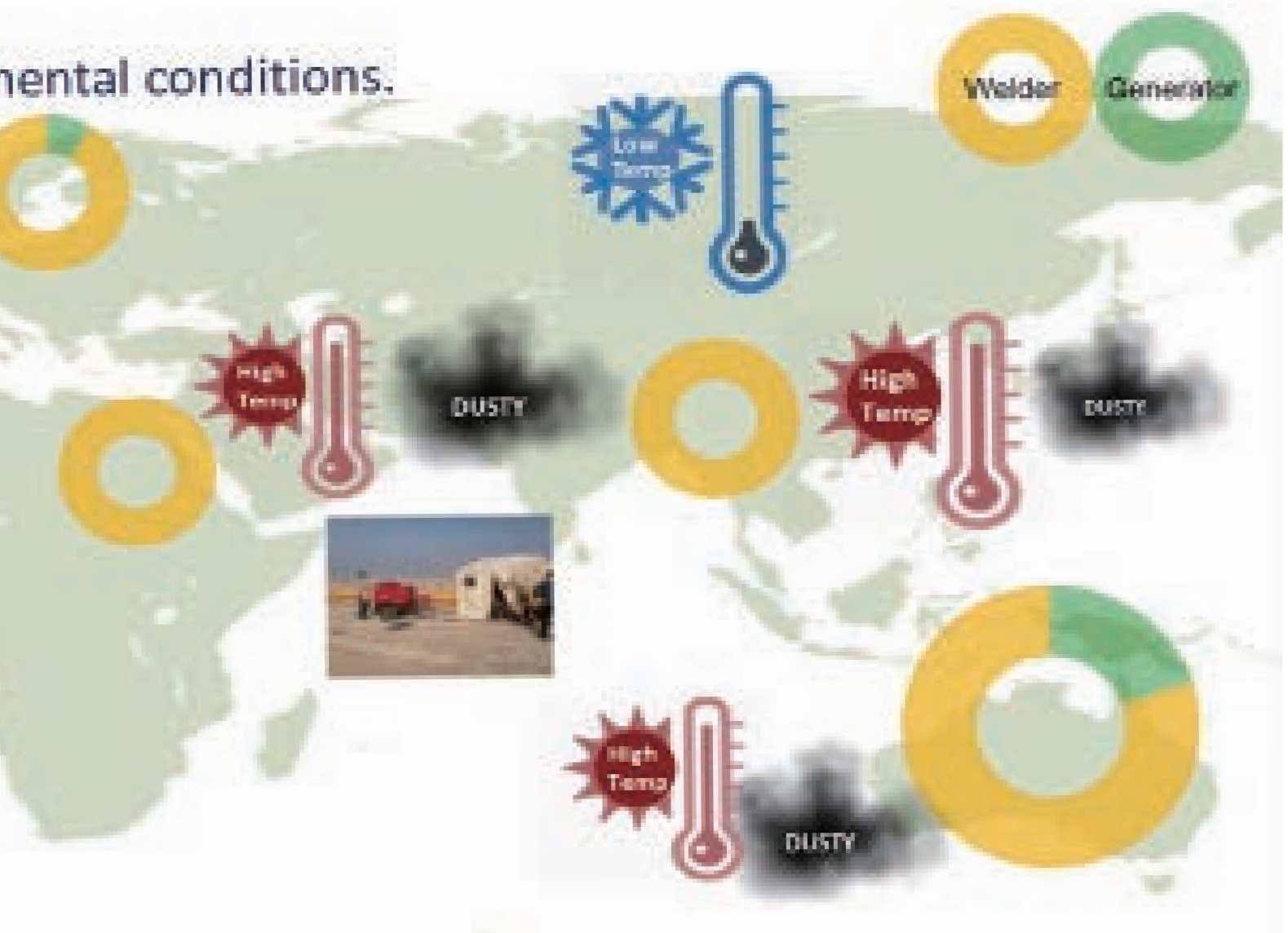
a. World map

Global Sales Network

covers extensive geographical areas of harsh environments

The graphic features a world map with several key elements: a blue snowflake icon labeled 'Low Temp' and a blue thermometer icon on the left; a yellow sun icon labeled 'High Temp' and a red thermometer icon on the right; a central photo of a construction site with a crane and workers; and a bottom-right photo of a large excavator on a construction site.

Environmental conditions.



b. Products in the market

i) Singapore

Singapore • Tropical rainforest climate, always hot and humid with a regular rainfall.
• Day time temperature is around 30 degree C or more.



ii) Qatar

Qatar • Daily maximum temperature in the summer reaches 50 degrees C or more.
• Dust-laden strong wind blows in the spring and summer.



Maintenance of construction machinery



Welder exposed to the burning heat



Sand storm blowing in to the city



Oil pipeline construction

iii) Australia

Australia

- Temperature varies widely between day and night.
- Less precipitation throughout the year

Sandstorm



Extremely hot



iii) Saudi Arabia

Saudi Arabia

- High temperature during the day and low temperature at night
- Desert climate

Sandstorm

Desert climate

Over 50°C



iv) Philippines

Philippines

- High temperature during the day and low temperature at night
- Desert climate

Dusty



Hot temperature



High humidity





a. Questions about design

- Q1: I prefer air-cooled engine because water-cooled engine requires periodical LLC replacement,
- A1: Water-cooled engine advantages over air-cooling in terms of power efficiency. Air-cooled engine loses a lot of power by heat radiation. I believe you will be certain which is better if you think of how often your car requires LLC replacement.
- Q2: Can the engine be more cooled with the side doors being opened?
- A2: No. The cooling system is designed based on the assumption that the doors are fully closed. Operation with doors being left open may result in over heat of the electrical components.
- Q3 The sound level does not matter.
- A3 Everyone who says so changes his/her mind once he/she stands beside the working unit. Sound attenuated machine is getting more and more sought-after, because jobsite especially in the central city requires sound-sensitive machines
- Q4 How do you measure noise level?
- A4 Designated noise level is mentioned in the operation manual at 7m distance under no load condition.
- Q5 Competitor model also has dual welding mode.
- A5 It has interference on welding and generating. For example, on the competitor machine welder feels big output fluctuation at the moment another guy starts to weld or use auxiliary output on the competitor machine. We are aggressively promoting RealDual® performance worldwide.
- Q6 What is the difference between Japan-made welding machines and those from other countries?
- A6 We use thyristor to convert AC to DC. Other brands use IGBT. The advantage of thyristor is simplified structure, less expensive and heat-resistant. On the other hand, IGBT is vulnerable against heat and very expensive. Many customers who used competitor's machines were not satisfied with machines with IGBT because they required high operation/repair cost.

- Q7 Shindaiwa machine produces high frequent noise from a welding rod.
A7 The noise comes from thyristor. It does not degrade welding performance, reliability, and welding quality.
- Q8 Does Shindaiwa allow gouging right after welding? Major Asian machines does not allow welding after gouging.
A8 With Shindaiwa, you can perform gouging right after welding. As distributor of Miller admits, most of the other brand does not allow you gouging right after welding.
- Q9 Can we use bio-diesel?
A9 B5 quality is allowed up to 5%, according to Kubota. We have never heard any troubles caused by bio diesel.
- Q10 What is the ambient temperature/altitude in which Shindaiwa machine offers best performance?
A10 Shindaiwa is resistant against the temperature between minus 15 and 40 degree Celsius, at more than 300m high above sea level. The output could be degraded, or you may face over heat earlier if you operate the machine out of such conditions.
- Q11 Actual welding/auxiliary output voltage is different from the ones that meter on the control panel shows.
A 11 The meter shows the output from the alternator. The length of the cable affects on the actual output.
- Q12 What is spill containment?
A12 It prevents oil, fuel, or LLC leaking out of the machine. This kind of prevention is more and more required for the jobsite in the countries such as U.S. and Japan,
- Q13 Made in Japan?

b. Questions about service

A13 Main components including engine, alternator, and PCB are made in Japan.

Q1 Where do you offer service for the engine?

A1 Kubota service center in your region offers after sales service.

Q2 Do we have to follow the maintenance chart?

A2 Manufacturer point of view, the answer is yes. Sales point of view, the answer could be that it is up to you. The point is that warranty cannot cover troubles caused by inadequate maintenance.

c. Questions about warranty

Q1 When does warranty period start?

A1 It starts for 3 years from the day on the invoice, or 3000 hours.
Consumable items are excluded.

Q2 What happens if customer uses non-genuine parts?

A2 Genuine parts are highly recommended. Non-genuine parts voids warranty terms and condition.

d. Questions about welding functions

Q1 What is arc control?

A1 You can adjust the arc strength. Below is recommendation;
Root path, Gouging: Set to Maximum for less arc-cut
Scratch start TIG: Set to Minimum for stable arc and less spatters

Q2 What is pre-set?

A2 Welding current in CC mode can set by control dial. You can adjust it without coming back to the machine if you use remote controller.

Q3 What is hot-start?

A3 It is an arc characteristic that allows easy arc start while avoiding electrode from sticking to the work.

Q4 Can I use Scratch start TIG?

A4 Yes. Set welding mode to CC. However, some says that it is not good. Try it by yourself, just in case.

Q5 How long can I extend a welding cable?

A5 Refer to owner's manual, page XX.

Q6 What is the allowance of the gouging rod?

A6 It is up to 9.5mm for single operator mode. However it depends on user's request, tastes and parameter. Some says 9.5mm is adequate while some other say that 8mm is good.

e. Others

Q1 How about fuel consumption?

A1 Roughly speaking, you can operate single or dual welding for 10 hours. Ask your sales for detail, or refer to fuel consumption chart offered by YBK.

Q2 What is the recommended battery specification?

A2 Always use standard specification with ventilated type. Sealed battery offers less starting capacity and less battery life.

Q3 How does idle control switch work?

A3 AUTO mode offers better fuel consumption and less noise.

Set it to HIGH when you use high capacity motor, precision instruments or AC load with an attached magnetic switch.

Q4 How long can we extend cable of each remote control?

A4 Up to 90m.

Q5 What happens if you connect different devices to the remote control receptacle?

A5 It does not work.

Q6 What should we do if monitor lamp flash?

A6 Refer to page XX on operation manual.

Q7 Engine does not start again after engaging emergency stop.

A7 Reset the switch. Refer to page 15.

Chapter 11. Yamabiko Corporation

a. Overview

Company Name	YAMABIKO CORPORATION
Date Founded	December 1, 2008
Headquarters	Tokyo, Japan
Net Sales	113,348 mil. Yen/ 1,020 mil. USD (as of March 31, 2015 Consolidated)
Capital	6,000 mil. Yen
Fiscal Year End	March 31
Number of Subsidiaries	17 (10 in Japan, 7 outside Japan as of March 31)
Number of Employees	2,684 (as of March 31, 2015 Consolidated)
Stock Listing	Tokyo Stock Exchange, First Section
Securities Code	6250
Total Number of Issued Stock	11,027,107 (as of March 31, 2016)
Number of Share Trading Unit	100

b. Production site in Japan



e. Chronology of the products



g. Shindaiwa brand introduction video

Shindaiwa brand introduction video can be watched here;

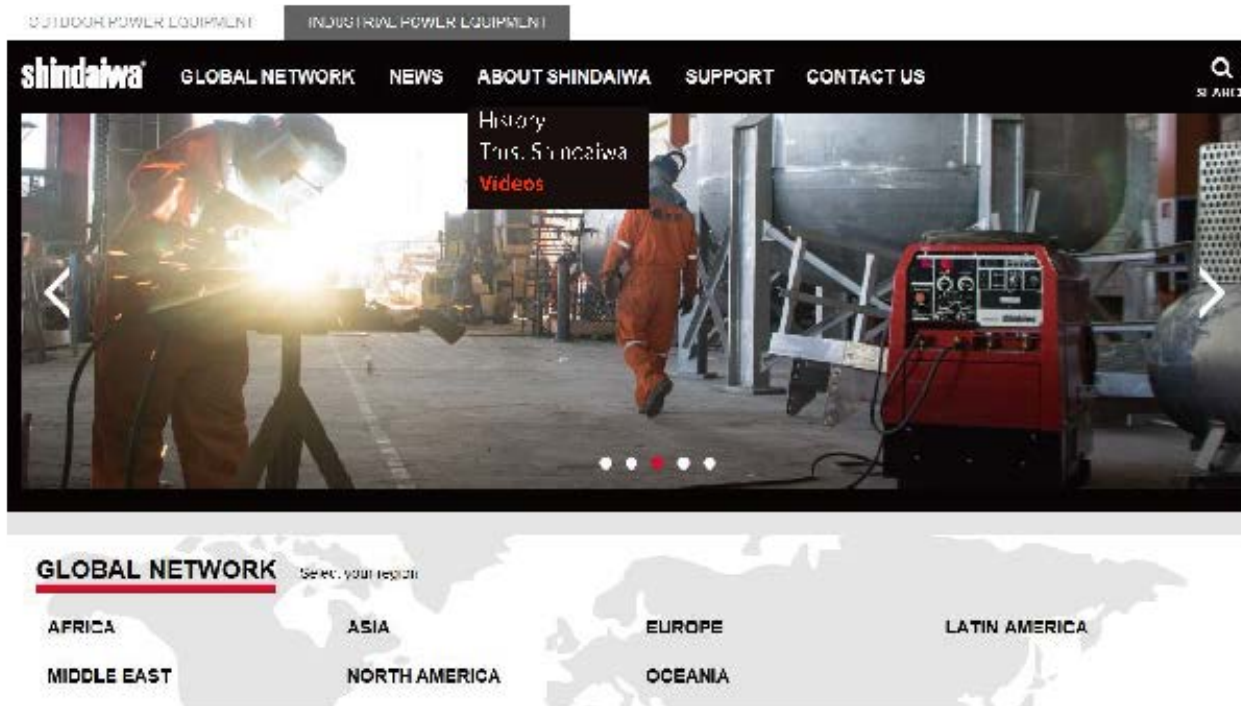
1) YouTube:

English <https://youtu.be/LNG7PI1Z-VQ>

Russian https://youtu.be/L_uJlVVVzA

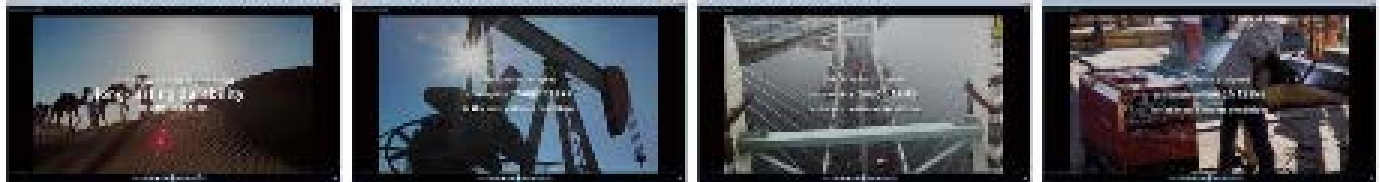
Spanish <https://youtu.be/W8rtN38E0F8>

2) Shindaiwa Website http://www.yamabiko-corp.co.jp/shindaiwa_global/ipe/
Go to **ABOUT SHINDAIWA**>**Videos**



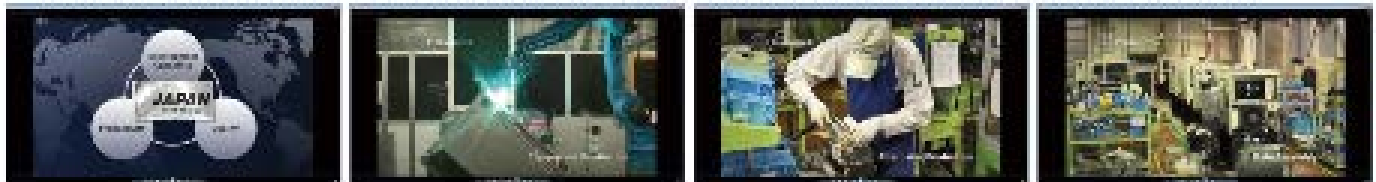
1) Introduction

Shindaiwa brand is strong against harsh weather conditions



2) JAPAN Technology

A driving force behind every production process that brings about global competitiveness



3) Shindaiwa products around the world

Welder and generator used in a variety of jobsite around the world



4) Testimonials

What distributor and end users are saying about Shindaiwa brand



13. Appendix

a. Proper cable cross-selection area

Size of Cable (Unit: mm²)

Return Length Welding Current	20m	30m	40m	60m	80m	100m
500A	38	60	80	125	200	200
450A	38	60	80	100	150	200
400A	38	50	60	100	125	200
350A	30	50	60	80	125	150
300A	30	38	50	80	100	125
250A	22	30	38	60	80	100
200A	22	30	30	50	60	80
150A	22	22	22	38	50	60
100A	22	22	22	30	30	38

b. Capabilites usable simultaneously

■ Limitation of AC Power Supply in the simultaneous use of welding and generating

Welding Output		AC Power Output		
Operators	Amperage	3-Phase (P.F. = 0.8)	1-Phase (P.F. = 1.0)	BOTH 3 & 1-Phase
1 Person MODE : [SINGLE] or [DUAL]	60A	13.2kVA	6.6kW	10.5kW
	100A	13.2kVA	6.6kW	10.5kW
	150A	13.2kVA	6.6kW	10.5kW
	200A	12.5kVA	6.6kW	10.0kW
	250A	10.0kVA	6.6kW	8.0kW
	300A	7.5kVA	6.0kW	6.0kW
	400A	1.5kVA	1.0kW	1.0kW
	500A	0 kVA	0 kW	0 kW
2 Persons MODE : [DUAL]	60A×2	13.2kVA	6.6kW	10.5kW
	100A×2	13.2kVA	6.6kW	10.5kW
	150A×2	9.5kVA	6.6kW	7.5kW
	200A×2	5.5kVA	4.0kW	4.0kW
	250A×2	1.0kVA	0.5kW	0.5kW
	280A×2	0 kVA	0 kW	0 kW

PLUS OR OR

<Caution>

- Avoid the simultaneous use in the case high quality result in welding is required.

c. Periodic inspection and maintenance table

Checking Item	Start-up Check	Checking Time					
		At 50hrs	Every 100 hrs	Every 200 hrs	Every 400 hrs	Every 1000 hrs	Every 2000 hrs
1 Check and supply Fuel	○						
2 Check and Supply Engine Oil	○						
3 Change Oil Change		○	2 nd or after ○				
4 Oil Filter Change		○		2 nd or after ○			
5 Check/Adj Water/Coolant	○						○ or one year
6 Water/Coolant Change							○ or one year
7 Clean Fuel Strainer		○	2 nd or after ○				
8 Change Fuel Filter					○		
9 Check Water Separator	○						
10 Drain Water/Clean Water Separator					○		
11 Drain Water/Clean Fuel Tank				○			
12 Check Leakage Fuel, Oil, Water	○						
13 Check/Adj Battery Water	○			○ Clear	○ Charge		
14 Clean Air Element		○	2 nd or after ○				
15 Change Air Element					○		
16 Adjust Tension V-Belt		●	2 nd or after ●				
17 Change V-Belt					● or 2 years		
18 Clean Radiator Fin					●		
19 Clean Radiator (Inlet)					●		
20 Change Fuel Hoses, Oil Hoses, Wiper/Sealing Rubber							● or 2 years
21 Adjust Engine Valve Clearance						● Adjust	● Flare
22 Check/Adjust Injection Nozzle					●		
23 Check/Adjust Injection Pump							●

d. Major trouble shooting

Symptoms	Possible Cause	Corrective Actions
Starter motor does not start	<ol style="list-style-type: none"> 1. Weak Battery 2. Dead Battery 	<ol style="list-style-type: none"> 1. Recharge Battery 2. Replace Battery
Engine does not start	<ol style="list-style-type: none"> 1. Fuel lever on fuel strainer or water separator to [CLOSE]. 2. Insufficient Fuel 3. Emergency Stop Switch keeps pushed 4. Fuse burnt 5. Fuel is contaminated by the water or dust 6. Fuel pump malfunction 	<ol style="list-style-type: none"> 1. Open the fuel lever for both fuel strainer and water separator 2. Replenish fuel 3. Release the Emergency Stop Switch 4. Repair the fuse 5. Drain water or clean fuel tank, fuel strainer, and fuel separator 6. Repair the fuel pump
Engine starts, but stalls immediately	<ol style="list-style-type: none"> 1. Insufficient oil 2. High Water Temperature, Insufficient coolant/water 3. Unable to charge 	<ol style="list-style-type: none"> 1. Replenish oil 2. Replenish coolant/water 3. Repair
No Welding Output	<ol style="list-style-type: none"> 1. Weld Terminals Switch is selected incorrectly as [REMOTE CONTROL] 2. Exceeding Duty Cycle (The warning lamp is blinking) 	<ol style="list-style-type: none"> 1. Turn to [WELD TERMINALS ON] for either terminal A or B directly 2. Stop the operation until the equipment cools down (the lamp to OFF)
Welding Arc is weak	<ol style="list-style-type: none"> 1. SINGLE/DUAL Selector Switch position is incorrectly selected to [DUAL] mode 2. Wrong Output Control Dial position 3. Arc Control Dial is set to negative(-) side for CC mode 4. Improper connection of cables 5. Improper Cable Diameter 6. Improper connection to the base material 7. Simultaneous Use of Welding and Generating 8. Engine output is down 	<ol style="list-style-type: none"> 1. Turn to [SINGLE] mode 2. Turn the dial clockwise 3. Turn the Arc Control Dial clockwise to positive(+) side 4. Connect securely 5. Replace the cables based on the [Welding Cable Selection] 6. Connect securely 7. Stop using AC Power output 8. Keep duty cycle
Excessive Welding Arc	<ol style="list-style-type: none"> 1. SINGLE/DUAL Selector Switch is to [SINGLE] mode 2. Wrong Output Control Dial position 3. Arc Control Dial is set to positive(+) side for CC mode 4. CV/CC Selector Switch is selected for [CC] Mode 	<ol style="list-style-type: none"> 1. Turn to [DUAL] mode 2. Turn the dial counterclockwise 3. Turn the dial counterclockwise to negative(-) side 4. Turn to [CC] mode
Unable to weld the Cellulose rods	<ol style="list-style-type: none"> 1. [OTHERS] mode is selected for rod selection 	<ol style="list-style-type: none"> 1. Select [CELLULOSE] mode
Unable to operate the wire feeder properly	<ol style="list-style-type: none"> 1. Wire feeder coupler is not connected properly 2. Circuit protector is activated 3. Improper power input for the wire feeder 4. [CC] mode is selected incorrectly 	<ol style="list-style-type: none"> 1. Confirm the coupler for proper connection 2. Reset the circuit protector 3. Select the correct power input 42V/115V for designated wire feeder 4. Select the [CV] mode properly
No AC Output	<ol style="list-style-type: none"> 1. The breaker (Main and 1-P) positions to [OFF] 	<ol style="list-style-type: none"> 1. Turn to [ON]
AC Output is weak	<ol style="list-style-type: none"> 1. The rated current of the load exceeds the rated output 2. Use of Welding and Generating 	<ol style="list-style-type: none"> 1. Adjust according to [OUTPUT LIMITATION] 2. Stop Welding
Unable to activate the AUTO IDLE mode	<ol style="list-style-type: none"> 1. Welding cables short circuit 2. The power consumption of the load is 0.5A or below 	<ol style="list-style-type: none"> 1. Repair the short circuit 2. Set the Idle Control to [HIGH] mode
Engine does not stop	<ol style="list-style-type: none"> 1. Stop Solenoid malfunction 	<ol style="list-style-type: none"> 1. Turn the fuel lever to [CLOSE] to stop and repair
Excessive Black smoke exhaust from muffler	<ol style="list-style-type: none"> 1. Overloaded use 	<ol style="list-style-type: none"> 1. Operate the machine within the rated output

e. Error code display

Error No.	Possible Causes	Corrective Actions
E01 [OVER HEAT] Monitor Lamp is also blinking	Alternator and/or control parts Overheat	Turn the Idle Control Switch to [AUTO] and cool down the unit with no-load operation until [OVERHEAT] Monitor Lamp blinking will be stopped. Stop the engine after the [OVERHEAT] Monitor Lamp blinking will be stopped, then restart the engine. ※ Operate the unit properly based on the operation manual to avoid overload, over-duty cycle, unclosed door, and / or intake/exhaust clogging etc.
E02	Control parts Malfunction	Shut off the engine immediately and resolve the malfunction components. ※ Consult your dealer for necessary inspection
E03	Welding output Short Circuit	Shut off the engine immediately and confirm if there is short circuit on the welding output. Start the engine after resolving the troubled area for recovery.
E04	Incorrect Welding Mode Selector	Shut off the engine immediately and resolve the malfunction components. ※ Consult your dealer for necessary inspection

f. Fuel consumption

<Welding Load>

Mode	Consumption (L/Hr)	Continuous Operation Hr
Welding Single Use Rated Output 480A Duty Cycle 60%	5.2	12.0
Welding Dual Use Rated Output 230A x 1 Duty Cycle 80%	3.8	16.4
Welding Dual Use Rated Output 190-A x 2 Duty Cycle 80%	4.7	13.3

<Generating Load>

Mode	Consumption (L/Hr)	Continuous Operation Hr
3-Phase <Power Factor 0.8> 415V 15kVA (Full Load)	5.3	11.6
1-Phase <Power Factor 1.0> 240V 10.8kVA (Full Load)	5.1	12.1

<No Load>

Mode	Consumption (L/Hr)	Continuous Operation Hr
Slow-down	1.4	43.9

shindaiwa[®]