

OWNER'S MANUAL

Air-cooled diesel welder and generator set



Voltzen DS2300

Portable Diesel Welding Generator | 230 A Stick Welding | 5 kVA Auxiliary AC



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PREFACE

The following manual is only a guide to assist you and is not a complete or comprehensive manual of all aspects of maintaining and repairing your generator/welder. The equipment you have purchased is a complex piece of machinery. We recommend that that you consult with a dealer if you have doubts or concerns as to your experience or ability to properly maintain or repair your equipment. You will save time and the inconvenience of having to go back to the store if you choose to write or call us concerning missing parts, service questions, operating advice, and/or assembly questions.

Our air-cooled diesel welders and generators have some of the following features:

- Lightweight construction
- Air cooled
- Four-stroke diesel internal combustion engine
- Direct fuel injection system
- Recoil starter or an optional electric starter
- Large fuel tank
- Automatic voltage stabilizer
- NFB circuit protector
- AC and DC outputs
- Low oil pressure sensor

The air-cooled diesel welder and generator set are widely used when electrical power is scarce. Our welders provide a portable mobile solution in supplying power for field operations during project construction. Some other known applications include pipeline construction and metal welding when electrical power is not available.

This manual will explain how to operate and service your welder and generator set.

If you have any questions or suggestions about this manual, please contact your local dealer or us directly. Consumers should notice that this manual might differ slightly from the actual product as more improvements are made to our products.

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1. Overall view of Voltzen DS2300



2. Control panel of Voltzen DS2300



CHAPTER 1. TECHNICAL SPECIFICATIONS AND DATA

1-1 Technical specifications and data(in English units)

Model	Voltzen DS2300
Frequency[Hz]	50 60
Voltage[V]	220,230,240,110/220,115/230,120/240
Output power[Kva]	5.0
No-load Welding Voltage[V]	60~70
Welding Current[A]	230
Working Welding Voltage[V]	25~30
Current Adjustment Range[A]	50 ~ 230
Continuous Welding Load Rate	60%
Phase	Single phase
Excitation Method	Brush self-excitation
Power Factor Φ	1
Insulation Class	F
Fuel Tank Capacity[L]	15
Engine Model	KD195
Start Method	Electric start
Engine Type	single cylinder、4 stroke、air-cooled、vertical
Bore*Stroke[mm]	92 * 75
Displacement[L]	0.499
Compression Ratio	19.5 : 1
Speed	3000 3600
Power[Kw]	8.8
Drive Way	Crankshaft
Oil Capacity[L]	1.65
Fuel No.	Diesel: 0#(Sumner), -10#(Winter) Use No. 0 diesel in summer, and use No. -10 or No. -20 diesel in winter.
Oil No.	SAE10W30 (CD grade or above) uses CD or above grade 15W-40 oil (or SAE equivalent grade oil)
Size [mm] (L*W*H)	710*495*620
Packing Size[mm] (L*W*H)	710*500*620
Net Weight/Gross Weight[Kg]	76/82

Technical specifications and data(in SI units)

Item	Voltzen DS2300
Model	Voltzen DS2300
Welding process	Stick welding (SMAW)
Welding current range (A)	50 - 230
Rated welding voltage (DC) (V)	25 - 30
No-load voltage (DC) (V)	60 - 70
Electrode diameter (mm)	1.6 - 5.0
Auxiliary AC output, max. (kVA)	5.0
Auxiliary AC voltage / current	220 V / 16 A
Frequency (Hz)	50 / 60
Phase	Single phase
Power factor (cos phi)	1.0
Engine type	4-stroke diesel, single cylinder, forced air cooled
Engine model	KD195
Rated engine power	12 HP
Displacement (cc)	498
Speed (rpm)	3600
Starting system	Recoil / electric start
Fuel	Diesel
Fuel tank capacity (L)	15
Fuel consumption (L/h)	1.0
Continuous running (h)	8 - 10
Engine oil capacity (L)	1.65
Protection degree	IP23
Sound level	72 dB(A) at 7 m
Windings	All copper
Dimensions L x W x H (mm)	710 x 495 x 620
Dry weight (kg)	76

1-2 Basic operating parameters

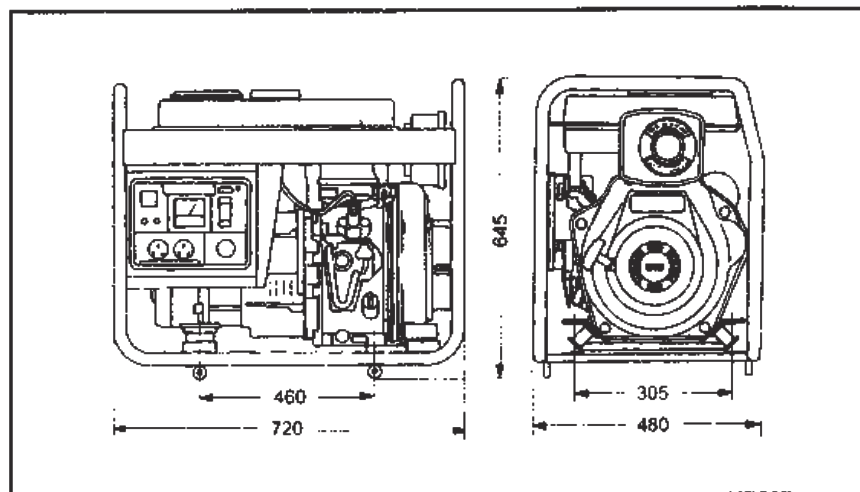
1-2.1 Under the given conditions, the generator will output the specified power in the table listed below.

Table 1.

Height above sea level (in)	Ambient temperature(F)°	RH
0	+60 (+20°C)	60%
39370.08 (<1000m)	41~104 (5~40°C)	90%

1-3 General dimensions and overview of the generators and welders

1-3.1 General dimensions of the DS2300 generators



Voltzen DS 2300

Voltzen - Cruxweld engine-driven welding generator series

D - Diesel engine

S - Stick (SMAW) welding output with auxiliary AC power

2300 - 230 A rated welding current

CHPTEP 2 OPERATING THE DIESEL GENERATOR

2-1 General main points of safety during operation of the welder and generator set .

In order to operate the welder and generator set safely, please follow all the instructions provided in this manual carefully . Doing so otherwise may lead to accidents and or equipment damage.

2-1.1 Fire prevention

The proper fuel for the diesel generator set is light diesel fuel . Do not use gasoline, kerosene and or other fuels other than light diesel fuel. Keep all flammable fuels away from the generator as the generator may spark and ignite these gases. In order to prevent fires from occurring and to provide enough ventilation for people and the machine ,keep the diesel generator at least 1.5meters away from buildings and or other equipment. Always operate your diesel generator on a level site .If the generator is operated on an incline , the lubricating system within the engine will not perform well and may lead to failure of the engine.

2-1.2 Prevention from inhaling exhaust gases

Never inhale exhaust gases emitted by the engine. The exhaust gases contain toxic carbon monoxide. Never operate your generator in places with poor ventilation. In order to operate this machinery indoors , a suitable ventilation system for the building is required to draw the poisonous exhaust gases out.

2-1.3 Prevention from accidental burns

Never touch the muffler and its cover when the diesel engine is running .Never touch the muffler and cover after the diesel engine has been used ,as the muffler remains hot for a good period of time .

2-1.4 Electris shock and short circuits

Never touch the generator if the generator is wet. Also never touch the generator if your hand is wet. Never operate your generator if the weather conditions call for any type of precipitation such as rain, snow or fog. To prevent electrical shocks, the generator should be

grounded. Use a lead to connect the grounding end of the generator to the grounding surface of choice. Please refer to Fig.2-1 and Fig.2-2 before beginning to use the electric welding generator.



Fig. 2-1

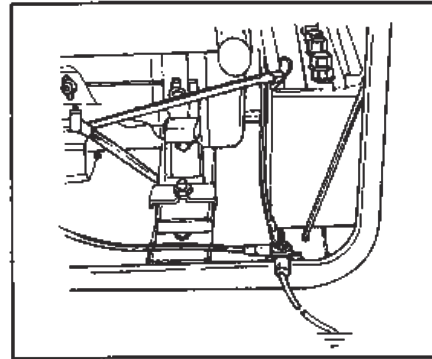


Fig. 2-2

Note: When connection devices to the generator, make sure all other devices are rated lower than the generators output. Any generator socket should not be overloaded over its regulated limit

2-1.5 Other safety points

Before operating this generator ,all operators should have a good knowledge of how to break the circuit if any accidents occur .Also,all operators should be familiar with all the switches and functions of the generator before using this machine .While operating the generator ,wear safe shoes and suitable clothes during operation.Always keep children and animals away from the generator.

2-1.6 Battery

The electrolytic liquid of the battery contains sulfuric acid .In order to protect your eyes, skin and clothing ,wear protective gear when working with the battery.If you come in contact with the electrolytic liquid,wash it immediately with clean water.Also, if the electrolytic liquid comes in contact with your eyes,see a doctor immediately.

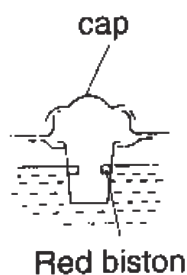
2-2 Preparation before operation

2-2.1 Fuel choices and fuel treatment

Fuel tank

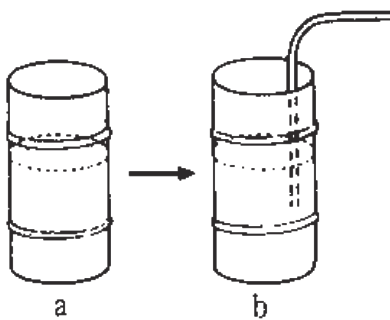
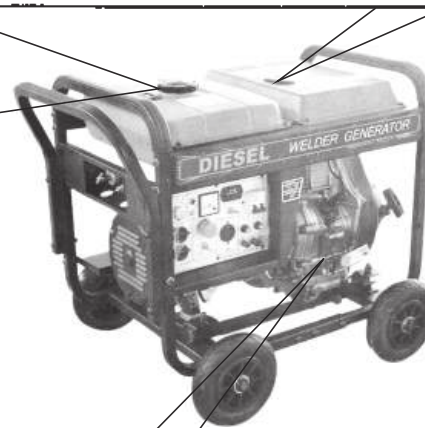
Use only light diesel fuel. The fuel should be filtered clean. Never let dust and water mix with fuel in the fuel tank. Otherwise it will clog the fuel lines and oil nozzles. It may also damage your pressure pump.

Note: It is dangerous to overfill the fuel tank. Never exceed the red piston in the filter.

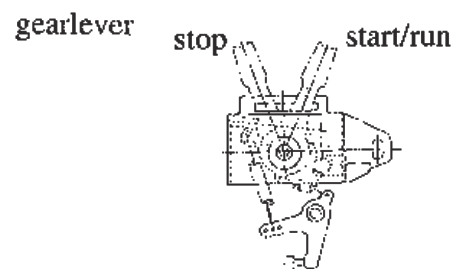


Air filter element

Do not wash the air filter. The element is made of dry material, which does not permit washing. When the output of the diesel engine is bad or the color of the exhaust gas is abnormal, replace the air filter element. Never start the diesel engine without the air filter.



- After purchasing fuel, put it into a drum and let it sit for 3-4 days.
- 3-4 days later, insert half of the fuel sucker into the drum (water and impurities stay in the lower portion of the drum)



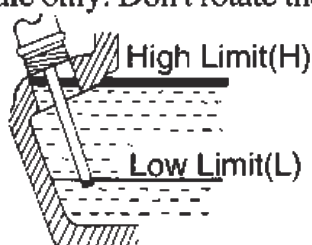
Note:

Never smoke near the opening of the fuel tank. Do not let sparks get near the fuel or fuel tank and do not overfill tank. After filling, tighten the fuel cap.

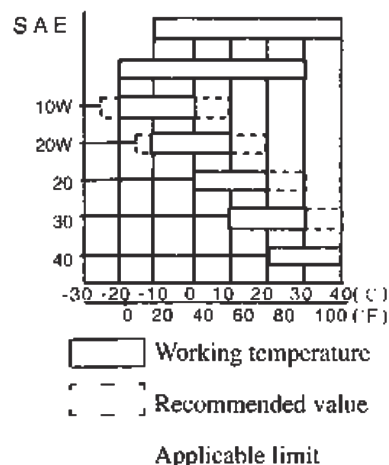
2-2.2 Fill engine oil

Injection mouth of lubricating oil

Put the generator at level place, and inject lubricating oil from the injection mouth. When check oil level, what you need to do is insert oil scale only. Don't rotate the oil scale.



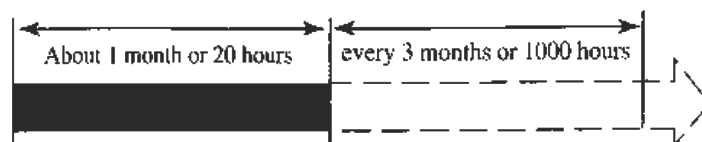
Capacity	Model	KD195
Litre (British Gal)		1.65 (0.36)



A.P.I

Classification of maintenance for diesel engine
The lubricating oil should be CC or CD grade.

Engine oil is the most important factor in determining the life of your generator engine. If you use poor engine oil or if you don't change the oil regularly, the piston and cylinder will wear easily or seize up. Also, the life of the other parts in your engine such as bearings, and other rotating parts will shorten considerably.

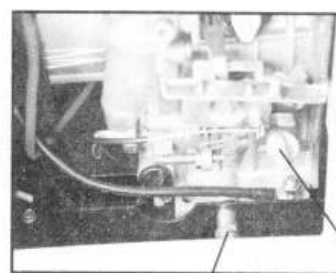


Time to change engine oil

Although there is an alarm system to check for low oil pressure, it is always a good idea to check the amount of oil inside the engine. If the oil level is low, fill it before starting the engine. A good time to drain the oil from the engine is when the diesel engine is still hot. If the engine is fully cooled, it is more difficult to drain all the oil out or some impurities will remain in the engine.



bolt to drain lubricating oil

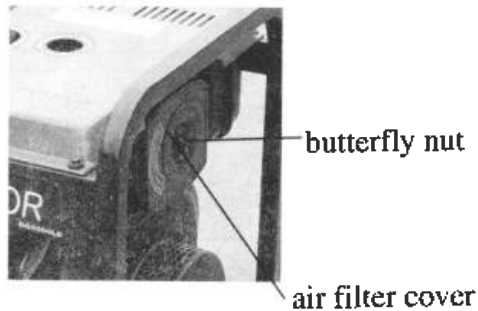


bolt to drain lubricating oil

Warning: Don't fill engine oil when diesel is operating.

2-2.3 Check air filter

(1) Loosen the butterfly nut, take the cover of the air filter off and take the air filter element out.

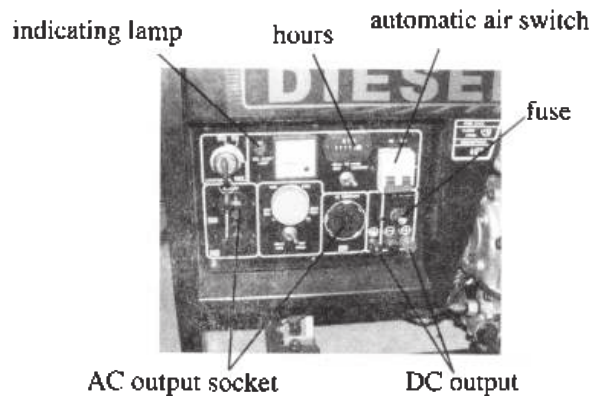


Do not use detergent to wash the air filter element. When the performance of the engine decreases or when the color of the exhaust gases is bad, exchange the filter element. Never start the engine without the air filter as foreign objects may enter the intake and damage the engine.



(2) After replacing the air filter element, replace the cover and tighten the butterfly nut firmly.

2-2.4 Checking the generator welder



Before starting the generator, make sure the air switch is in the "off" position. Starting the generator with the switch in the "on" position is very dangerous.

The generator should be grounded in order to prevent electric shock.

Use dry compressed air (with pressure about 1.96×10^5 Pa) to blow the dust out in the electric control cabinet and at the surface of the generator. Check to see how clean the surface of the sliding ring is. Check the pressure of the carbon brush. Also, check whether the position of the carbon brush at the slide ring is correct and the fixture is reliable with a good contact. According to the electric wiring diagram, check to see whether the connecting wire is correct and the connected place is firm. Use a 500 M Ω meter to measure the insulation resistance of the electrical part. The resistance should be less than 2 M Ω . When measuring devices, make sure the AVR is turned off. Otherwise, it will burn the AVR. (For silent set, the inspection may not be carried out).

2-2.5 The fuel and oil in a new engine is drained before sold .Before you start the engine ,please fill the fuel tank and oil first.Then,check to see if there are air bubbles in the engine . If there are ,follow these procedures.Loosen the connecting nut between the oil injection pump and oil pipe .Bleed the air from the system until there are no more bubbles. Then replace the connecting nut and tighten it.

2-3 Checking the operation of the diesel engine

2-3.1 Low-pressure alarm system.

The diesel engines have a low-pressure sensor system where if the oil pressure drops to low,the sensor will shut the engine off. The purpose of having this system is to ensure that the engine does not seize up. If there is not enough oil in the engine, the temperature of the oil will be raised too high. On the contrary, if there is too much oil in the engine, the engine oil can slow the engine down considerably.

2-3.2 Engine break in

When you purchase a brand new engine, the engine must be properly broken in. The break in period is about 20 hours.

(1) Avoid overloading the engine when brand new.

(2) Change the engine oil according to specifications. An oil change for a brand new engine is about 20 hours or every month, an older engine, the oil change is about 100 hours or three months.

2-4 Starting the welder generator set

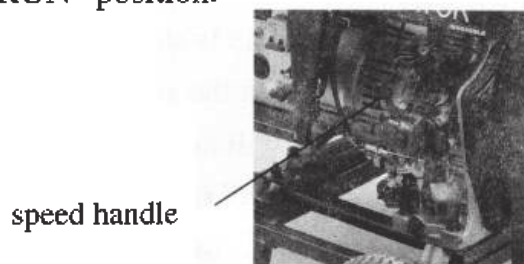
2-4.1 Manual starting.

Start the engine in accordance with procedures below:

(1) Put the fuel switch in the “ON” position.



(2) Turn the handle of the engine to the “RUN” position.



(3) Pull the recoil starter handle out until you feel resistance. It will reset to its original position automatically. The handle should be reset into its recoil device slowly to prolong the life of the life of the engine starter.

(4) In cold climate, it is difficult to start the engine. To remedy this, pull the rubber plug out from the rocker of the diesel engine and fill 2 ml of engine oil. Before starting, put the rubber plug back in place. If you don't put the rubber plug back in place, rain, dust and other dirt can enter into the diesel engine. It will cause the parts inside the diesel engine to wear quickly and lead to engine failure.

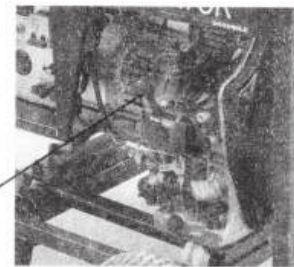
2-4.2 Electric starting

The procedures for preparing to start the engine are the same as the manual starting engine.

1. Insert key into ignition and put it in the "off" position.
2. Put the speed handle in the "Run" position.
3. Turn the start switch clockwise to the "START" position; To set the silent type, first turn it clockwise to the "RUN" (ON) position for 1-2 seconds. The electromagnetic iron will be triggered, now turn it clockwise to the "START" position.
4. After the diesel engine is started, remove your hand from the switch handle; the switch will automatically reset itself to the "ON" position.
5. If the engine is not starting after 10 seconds of cranking, wait about 15 seconds before trying it again. If you crank too long, the voltage of the battery will drop. This can lead to improper ignition.

When the diesel engine is operating, let the ignition retain on the 'ON' position.

speed handle



Note:

If you crank the starter too long, the battery may be drained too much to provide enough energy for proper engine ignition. Also, when the diesel engine is operating, let the key remain in the "ON" position.

2-4.3 Battery

Important Notice: ALL OF OUR UNITS DO NOT COME WITH A BATTERY FOR SHIPPING SAFETY PURPOSES. In order to get your generator started for the first time; the battery must be purchased at a local hardware or automotive supply store. Please verify the dimensions of the generator battery tray with the size of battery to be purchased. Also, all diesel generators need to have a battery with a minimum of 36~38 amp hours. If you purchase a dry battery and fill it with acid, please verify the acid level of the battery once a month.



high limit of liquid level

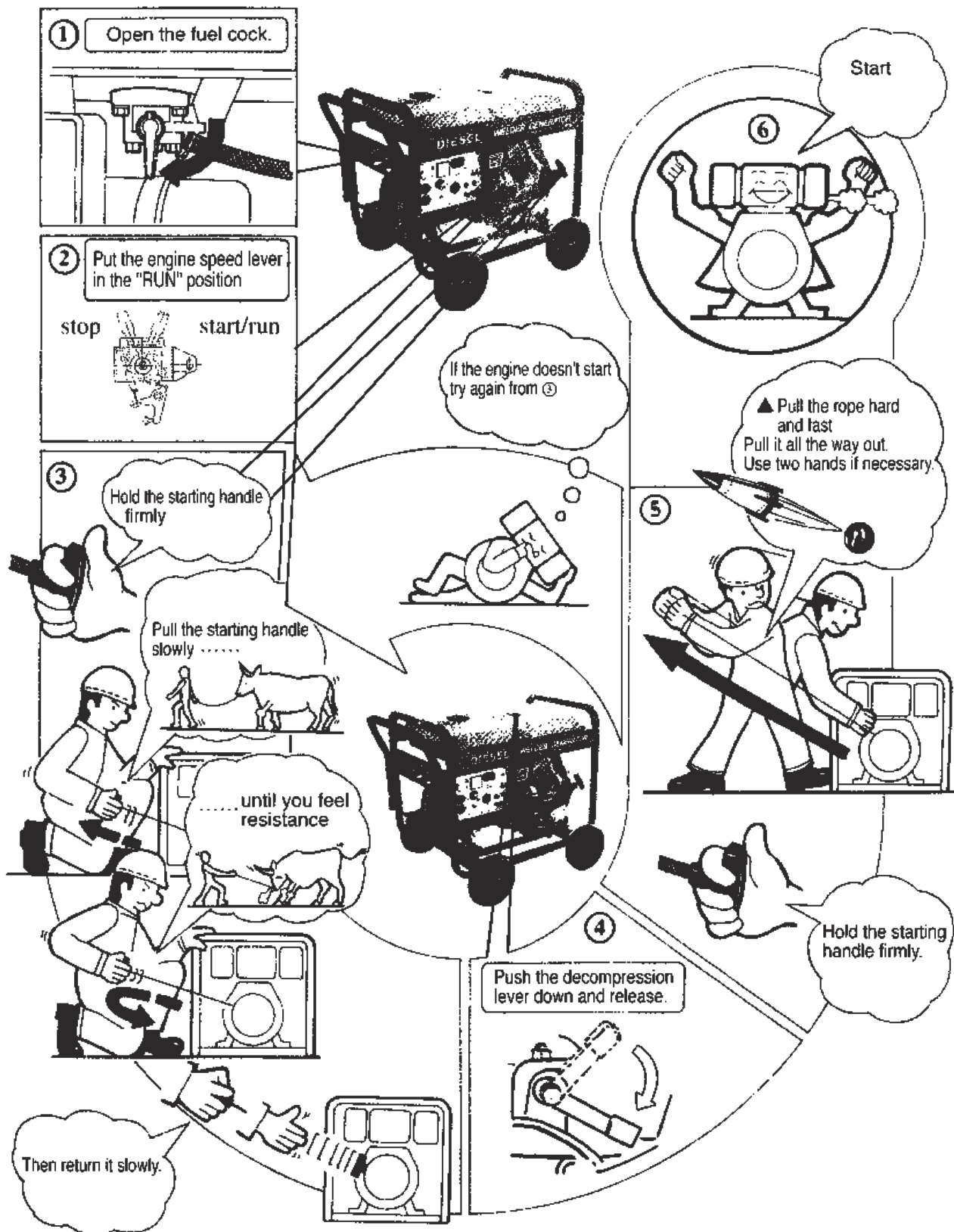
FOR DRY BATTERIES

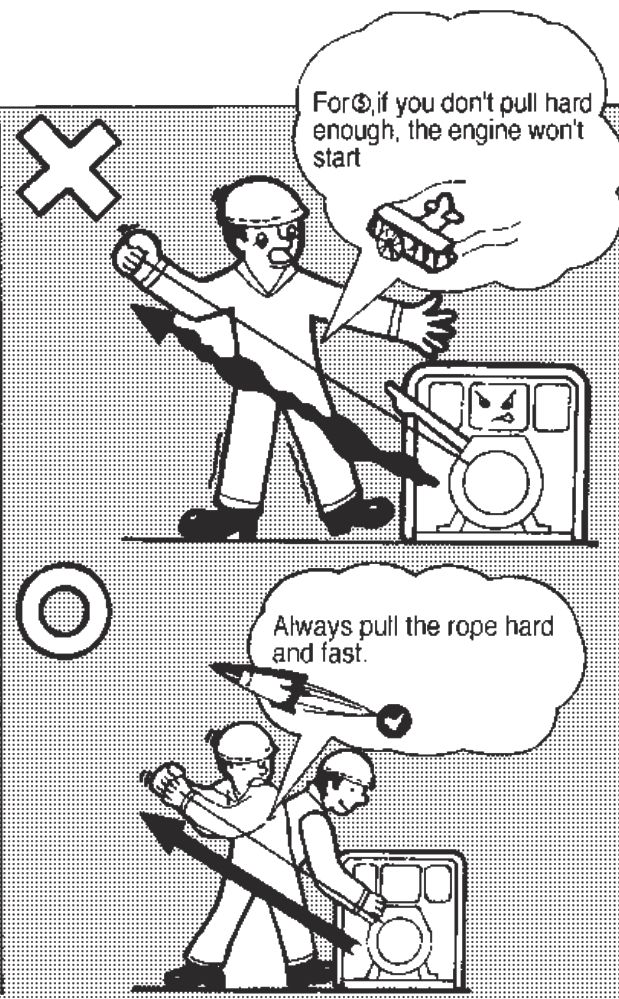
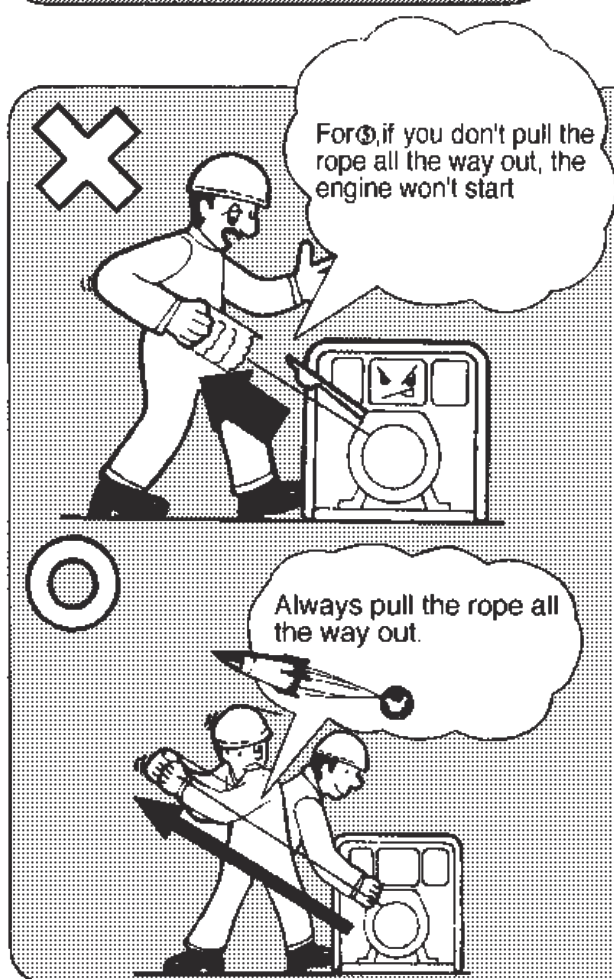
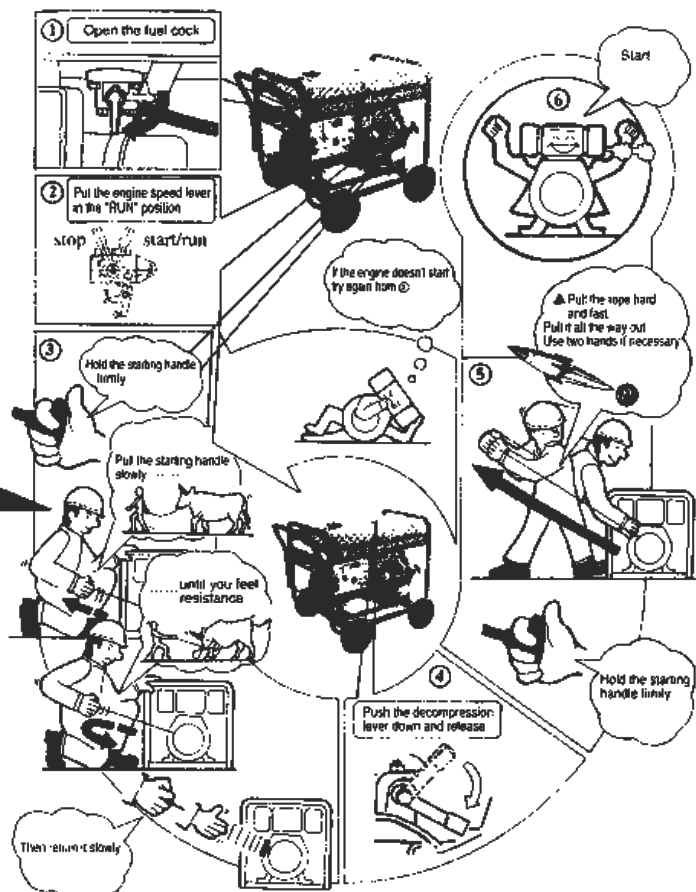
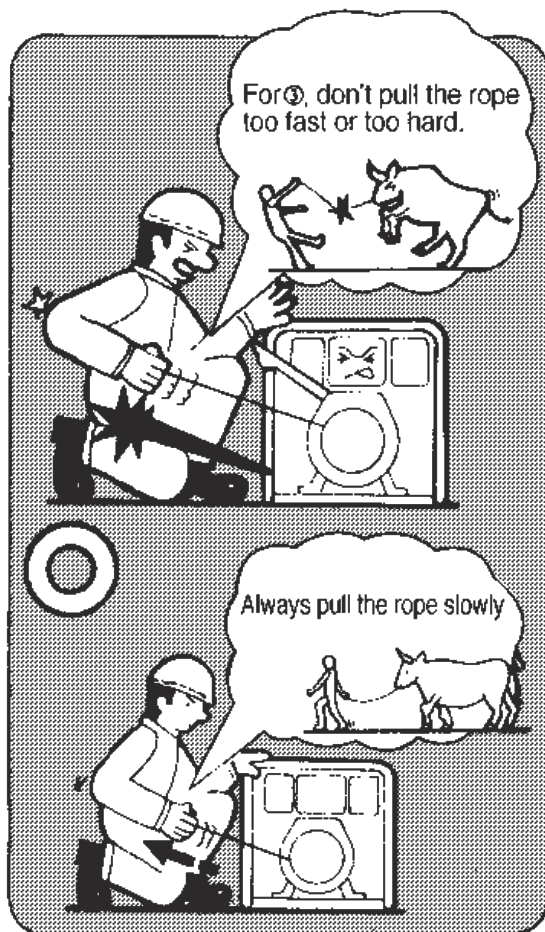
If the level in the battery is too high, the liquid may flow out and end up on surrounding parts resulting in corrosion of these parts.

Note: Avoid too much or too little of battery acid. Check and fill it once a month if necessary.

2-5 Procedures for starting the welder generator set

This procedure applies to the L series recoil starting style models.





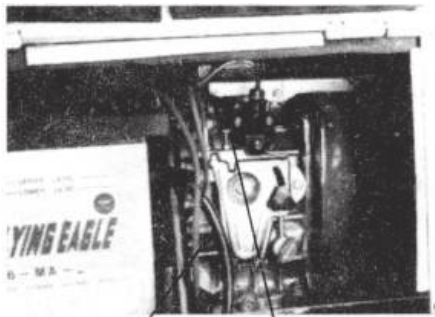
2-6 Proper operation of the welder generator set

2-6.1 Operating the diesel engine

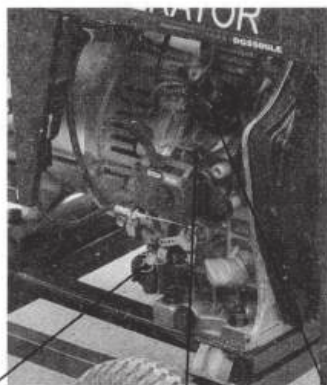
Pre-heat the diesel engine for 3 minutes under no load conditions.

First check the height of the lubricating oil level, if it is low, refill it. Our diesel engine are equipped with an alarm system that will notify you if the oil pressure is to low. The alarm system will shut down the engine if the oil pressure is to low.

Do not adjust the speed limit regulation bolt or the fuel adjustment bolt. These bolts have been set by the factory already, changing them will affect the porperties of the engine performance.



Fuel adjustment bolt Speed limit bolt



High-pressure fuel pipe nut Fuel adjustment bolt Fuel adjustment bolt

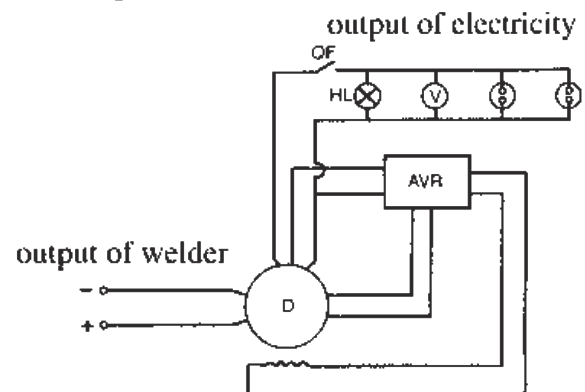
2-6.2 Checks during engine operation

1. Check to see if there are abnormal noises.
2. Check to see if the performance is good or bad.
3. Check the color of the exhaust gases (whether it is too black or too white).
If any of these conditions exist, stop the engine and find the cause of the problem. If no problems are found, please contact your local dealer or our nearest company branch.

2-7 Loading

2-7.1 Load conditions

Exert loads in accordance with the specified parameters. For an electric schematic of the welder and generator, please refer to the following one:



2-7.2 Output of electricity

1. Raise the revolutions per minute(turn the speed handle to the max setting) of the generator to get the maximum power out of the generator. If not, the automatic voltage regulator device will

excite and doing this for long periods of time will cause the AVA to burn. For the rated speed of the generator, please refer to Chapter 1, item 1-1 technical specification and data.

2. Observe the pointer of the voltmeter, it should point to $230V \pm 5\%$ (50Hz). (For 60Hz set, it will be $240V \pm 5\%$). Meanwhile put the switch in the GEN (generator) position. The AC voltage from the socket of the power supply can be output.
3. When connecting devices to the generator, make sure to connect these devices in order. Connect the large loads onto the generator first. If everything is functional, smaller loads can then be added. If the generator shuts off, it may be because the load being drawn by all the various devices are too high. In this event, decrease the number of small devices until everything is functional. The total drawn power should not exceed the maximum output power of the generator. Please see Table 1-1 for technical specifications of what the generator can output. In order to reset the generator after overdrawn power, let it sit for several minutes. If the indication of the voltmeter is too high or too low, adjust the speed accordingly. If there are problems, stop the generator immedi-

ately and fix the issue.

4. Switching the switch to GEN outputs electrical power. When doing this, there is enough power for electric welding, but the output current is very small. It can be used for electric welding rods below 3.2mm only. The welder of choice should be below 130A. When electric welding, the load at the output terminal should not be more than 1 kW. In order to guarantee the total load of the set, a general idea is (welder load + generator load).
5. When choosing the WELD (electric welding), the generator welder will output the necessary power for welding (the socket of the generator has no voltage output). The desired current for various electric welding rods and work can be adjusted through the potentiometer button on the switchboard. After adjusting this to a suitable position, the welding can be carried out. If a smaller current is desired, it can be adjusted by decreasing the speed of the generator. The maximum welding current is 210-220 A. The maximum current cannot be used for long periods of time.
6. Before operating the generator welder set, the connection between the electric welding cable and terminal should be tight and secure to avoid damaging the terminal caused by a bad contact

surface.

7. During operation, the generator welder should be in a place that has very good ventilation. Never cover the engine to solve a ventilation problem, as this will damage your equipment.
8. When the generator welder is used for generating electricity purposes only, the electric welding cable should be disconnected. If the purpose is for

electric welding independently, the air switch should be turned off or disconnected to avoid a short circuit at the output end.

9. A reference for various devices and the power required will be provided in Table 2-1. Also a table for various diameters of welding rods versus how much current is required will be provided in Table 2-2.

Table 2-1.

Note: Don't start more two machines at the same time. It should be started one by one. Don't use floodlight together with other machines at the same time too.

Load Model		Incandescent lamphousehold electric appliance	Machines that apply rectifying motor	Machine that apply induced motor (capacitance start type)		
		Projector, electric furnace, etc.	Drill press, Grinder, etc.	Water pump, air compressor, etc.		
				Load	60Hz	50Hz
Single phase synchronous Welder and generator	DS2300	Not exceed 2200/2500W	Not exceed 1000/1200W	400W or 250W	3 4	3 3

The revolution of generator (50Hz) should be raised to its rated revolution, 3000rpm (The speed handle should be turned to the top).

Table 2-2.

Dia. of electric welding rod	1.6	2.0	2.5	3.2	4
Power supply for welding	25-40	40-65	50-80	100-130	160-210

2-7.3 Charging the battery

1. For the electric starter generator welder, the 12V battery is automatically charged through the regulator on the generator when it is running.
2. If the generator is not used for long periods of time, the battery should be disconnected to avoid energy loss from the battery.
3. Do not connect the negative and positive terminals of the battery together at

any time. Doing so will damage the battery.

4. Do not reverse the polarities when attaching the battery cables to the battery. Doing so will damage both the battery and the electric starter.
5. When charging the battery, the battery produces flammable gases. Do not smoke, flames, and sparks get near the battery while it is charging as this may cause a fire. To avoid sparking while connecting the cables to the battery, first, connect the cables to the battery then to the motor. To disconnect battery cables, first disconnect the motor end of the cable.

2-8 Stopping the generator

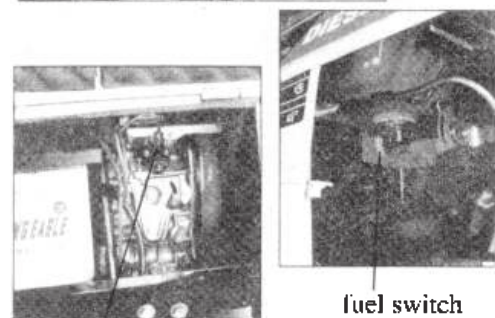
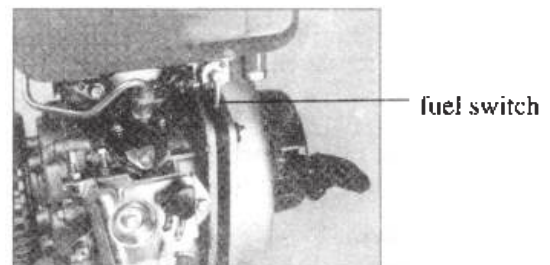
1. Take the electrical load off the generator.
2. Turn welder generator air switch off.
3. Put the speed handle in the "RUN" position and let the engine run for 3 minutes after unloading. Do not stop the diesel engine immediately let it warm down. Stopping the diesel engine suddenly may raise the temperature of the engine abnormally and lock the nozzle and damage the diesel engine.
4. Press down on the brake handle .

Note:

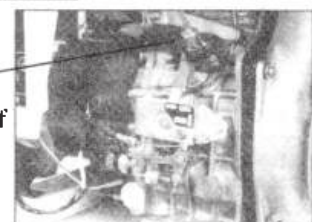
1. If the speed handle is in the "Stop position and the engine is still running, turn the fuel sitch to the "OFF" position or loosen the high pressure oil pipe nut. The engine could be stopped more than one-way other than the speed handle way.
2. If you cannot stop the engine with a load on it, then remove the load first than stop the engine.

5. If equipped with an electric starter, turn the key to the "Off" position.
6. Put the fuel handle to the "S" position.
7. Finally, pull slowly on the recoil handle until you feel resistance (this is when the piston is on the compression stroke, where the intake and exhaust valves are closed).

What this does is prevent the engine from rustiong when not in use.



Loose the nut (nut of high pressure oil pipe)



CHAPTER 3 MAINTENANCE

3-1 Maintenance schedules

Keeping your generator well maintained will prolong the life of your generator. Everything needs to be checked including the diesel engine, welder, generator, control cabinet, and frame. For overhauling procedures, please refer to the instruction manual of the relative subassembly. If you need these manuals, please call our company and we will send you one.

Before starting the maintenance, make sure the diesel engine is off.

Please refer to the Table 3-1 for the proper maintenance schedule.

Table 3-1. Maintenance schedule for diesel welder generator set

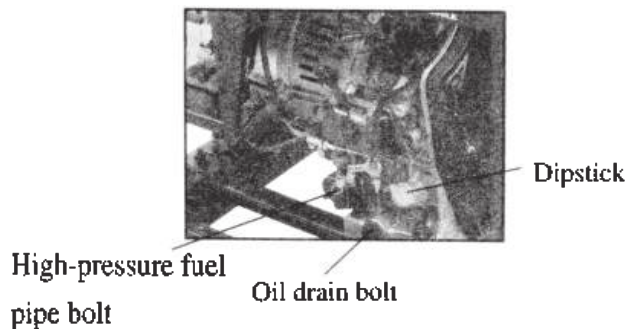
Interval of maintenance\Item	Everyday	1st month or after 20 hours	3rd month or 100 hours	6th month or 500 hours	Every year or 1000 hours
Check and fill enough fuel	○				
Discharge fuel		○			
Check and fill enough engine oil	○				
Check whether it leaks oil	○				
Check and screw each fastened part	○			● (Screw the bolt of cylinder head firmly)	
Exchange engine oil		○ (1st time)	○ (2nd time late)		
Clean filter of engine oil				○ (Exchange)	
Exchange air filter element	If operated at dusty region, the period of maintenance should be shorten)			○ (Exchange)	
Clean filter of fuel				○	● (Exchange)
Check high pressure oil pump				●	
Check nozzle				●	
Check fuel pipe				● (If necessary, exchange it)	
Adjust the gaps of air intake and air exhausted gate		● (1st time)		●	
Grind air intake and air exhausted gate					●
Exchange piston ring					●
Check electrolytic solution of accumulator	(each month)				
Check electric brush and slide ring				●	
Check insulation resistance	The time of stop is over 10 days. ○				

Note: "●" mark indicates that it needs special wrench, please contact with dealer.

3-1.1 Changing the engine oil(every 100 hours)

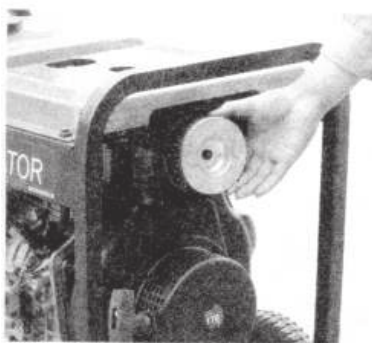
Take the oil cover out. Take off the oil drain plug when the diesel engine is still hot. Be careful of hot oil and hot engine as you may get burned. The bolt is located at the bottom of the cylinder.

After draining the oil, put the bolt back and tighten it. Then fill with the proper engine oil to the proper level.



3-1.2 Air filter maintenance schedule

- 1.Clean air-filter every 6 months or 500 hours of operation.
- 2.If necessary, exchange it.
- 3.Do not use detergent to clean air filter element.



Note:

Never start the engine without the air filter. This can cause serious damage to the engine if foreign objects enter the intake system. Always change the air filter on time.

3-1.3 Fuel filter maintenance

- 1.The fuel filter should be cleaned often to keep the engine running at maximum performance.
- 2.The recommended time period for cleaning the fuel filter is 6 months or 500 hours of operation.
 - a. To do this, first drain the fuel from the fuel tank.
 - b. Loosen the small screws on the fuel switch and remove the fuel filter from the port. Use diesel fuel to clean the fuel filter. Also, remove the fuel injector and clean the carbon deposit around it. The recommended time period for this is 3 months or 100 hours.

3-1.4 Cylinder head bolt tensions

The cylinder head bolts should be tightened to specifications please refer to the diesel engine manual for specifications and the special tools required to do this.

3-1.5 Battery check

Make sure the electrolytic solution of the battery is full. The engine uses a 12V battery. Due to numerous starting cycles, the electrolytic solution may be used up. Also, before filling, verify that the battery is not damaged in any way. Add distilled water to the battery when filling. Perform checks on the battery once a month.

3-2 Storing for long periods of time

If your generator needs to be stored for long periods of time, the following preparations should be made.

1. Start the diesel engine for 3 minutes then stop it.
2. When the engine is still hot, change the engine oil with new engine oil of the proper grade.
3. Pull the rubber plug out of the cylinder head cover and put 2CC of lubricating oil in it, then cover the plughole up again.
4. For manual starting generator welders, press the decompression handle down and pull the recoil handle 2 or 3 times. This pushes the intake out. (Do not start the engine)
5. For electric started generator welders, press the decompression handle down and crank the engine for 2-3 seconds. To do this, put the starter switch in the "Start" position. (Do not start the diesel engine)
6. Finally, pull the recoil starter until you feel resistance; this is when the piston is on the compression stroke where the intake and exhaust valves are closed.
Having the intake and exhaust valves closed will prevent rust, as moisture cannot get inside the combustion chamber.
7. Clean the engine and store it in a dry place.

CHAPTER 4 OVERHAULING AND TROUBLESHOOTING

4-1 Overhauling and troubleshooting procedures

Causes of malfunction		Remedy
Diesel cannot be started.	Not enough fuel	Add enough fuel
	The switch of fuel is not at "OPEN" position	Turn the switch of fuel to "OPEN" position
	High-pressure pump and nozzle do not inject fuel or the injected amount is less.	Disassemble the nozzle and adjust it at test table.
	Speed control lever is not at "RUN" position.	Turn speed control lever to "RUN" position.
	Check level of lubrication oil.	The standard oil amount of lubricating oil should be between high graduation "H" and low graduation "L"
	It is not quick and powerful to pull reactive starter.	Start diesel engine in accordance with the requirements of "start operation procedures"
	Nozzle exists dirt.	Clean the nozzle.
	Accumulator has not electricity.	Charge the accumulator or exchange it.
Generator cannot generate electricity and has not welding voltage.	Master switch (NFB) is not be switched on	Turn master switch handle to "ON" position.
	Carbon brush of generator was worn. The contact is bad.	Exchange the carbon brush.
	The contact of socket is bad.	Adjust the contact feet of socket.
	The rated revolution of engine cannot be reached.	Make it reach to the rated revolution in accordance with the requirements.
	AVR automatic governor is damaged.	Exchange it.
	The potentiometer of current regulation for electric welding is damaged.	Exchange it.

If cannot generate electricity still, please contact with dealer of our company or with our company directly.

4-2 Questions and doubts

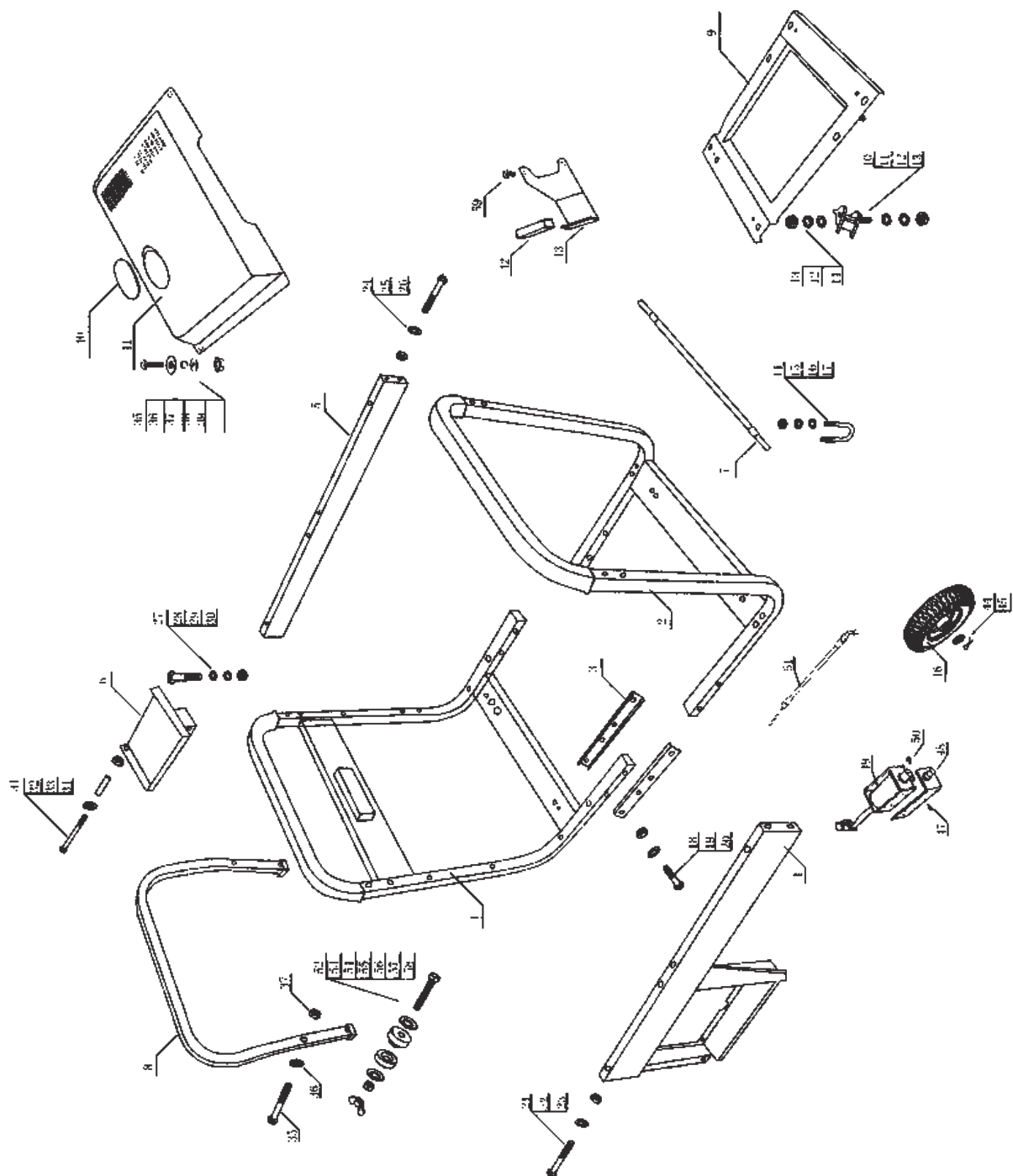
If you do not understand anything or have any questions, please feel free to contact your local dealer or with our company directly. Below is a list of some information you should have ready before contacting your local dealer or us.

1. Model of diesel engine generator and engine model number.
2. State of residency
3. Number of hours of operating equipment along with the problem that occurred.
4. A detailed condition and time when the problem occurred, in other words, climate and atmosphere

CHAPTER 5 PART LISTINGS

Voltzen DS2300

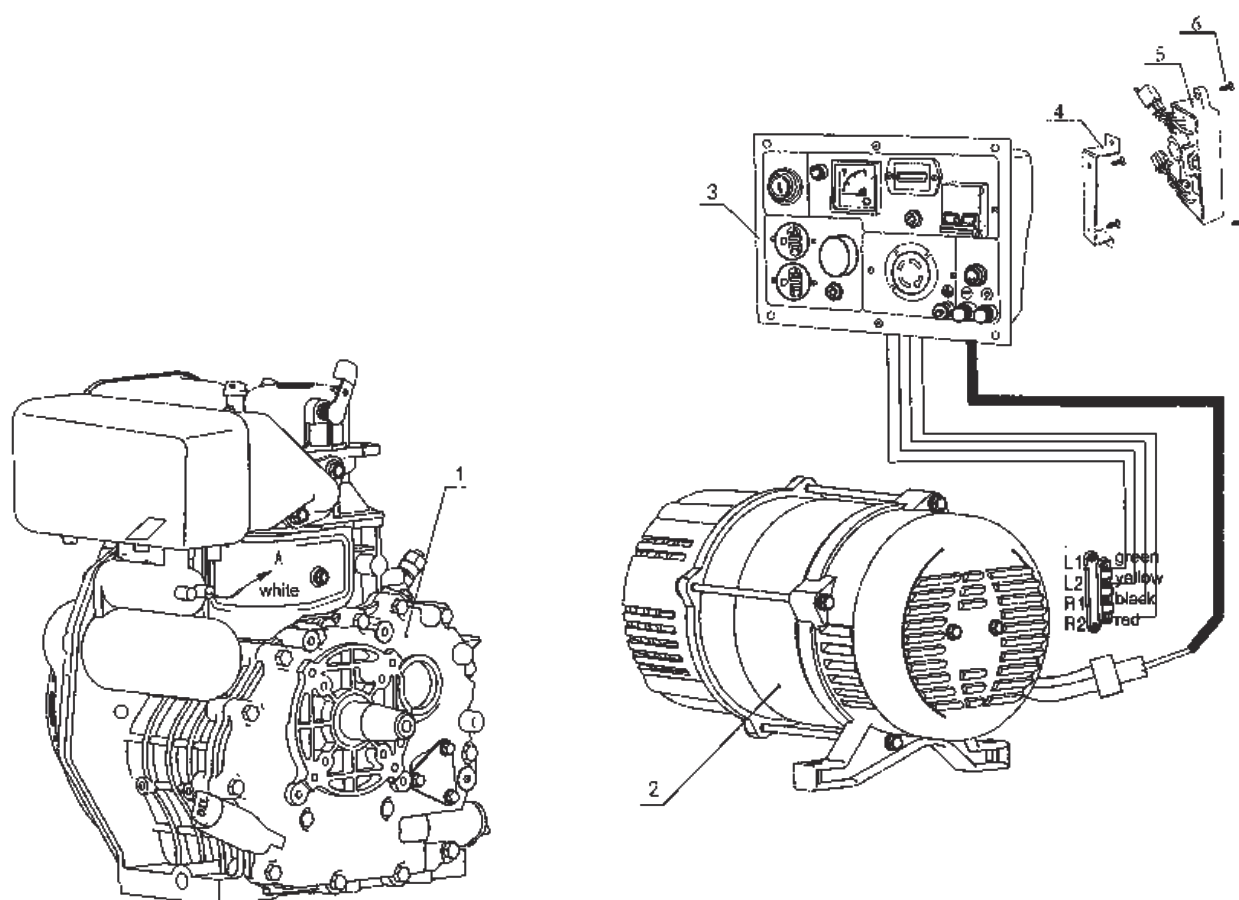
Exploded view of frame assembly



Number	Part Description	Qty	Part Number
1	Left frame	1	VDS 139
2	Right frame	1	VDS 140
3	Board connected	4	VDS 141
4	Output panel bracket	1	VDS 67
5	Back board	1	VDS 142
6	Battery tray	1	VDS 37
7	Axle	2	VDS 53
8	Handrail	1	VDS 24
9	Carrier frame	1	VDS 45
10	Rubber mount	4	VDS 49
11	Washer 10	8	VDS 17
12	Spring washer 10	8	VDS 18
13	Nut M10	8	VDS 19
14	Nut M6	8	VDS 20
15	Spring washer 6	8	VDS 21
16	Washer 6	8	VDS 25
17	U bolt	4	VDS 55
18	Nylon nut M 8	8	VDS 26
19	Nylon washer 8	9	VDS 27
20	Hexagon socket headcap screw	8	VDS 28
21	Hexagon socket head cap screw	4	VDS 29
22	Nylon washer 6	4	VDS 30
23	Nylon nut M6	4	VDS 31
24	Nylon nut M6	4	VDS 32
25	Nylon washer 6	4	VDS 33
26	Hexagon socket head cap screw	4	VDS 34
27	Bolt	1	VDS 38
28	Washer 10	1	VDS 39
29	Spring washer 10	1	VDS 40
30	Nut M10	1	VDS 41
31	Hexagon socket head cap screw	1	VDS 42
32	Nylon washer 6	1	VDS 43

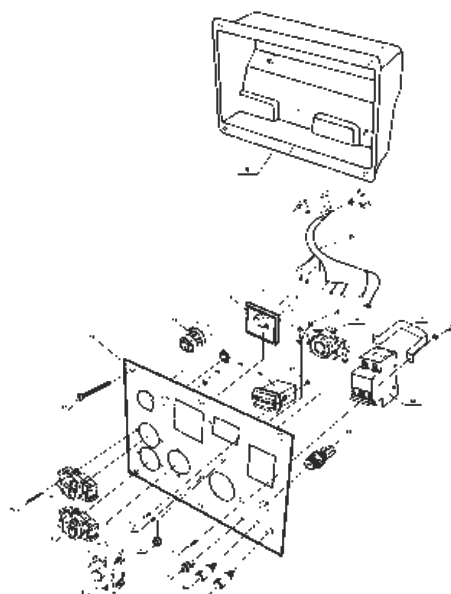
Number	Part Description	Qty	Part Number
33	Steel tube	1	VDS 44
34	Nylon nut 6	1	VDS 46
35	Bolt	4	VDS 47
36	Flat washer M6	4	VDS 48
37	Shock absorber	4	VDS 50
38	Washer 6	4	VDS 51
39	Nut M6	4	VDS 52
40	Rubber cover	1	VDS 23
41	Decorative cover	1	VDS 22
42	Rubber absorber	1	VDS 35
43	Plate connecting engine and frame	1	VDS 36
44	Flat washer	4	VDS 54
45	Split pin	4	VDS 56
46	Wheel	4	VDS 57
47	Bolt	1	VDS 58
48	Magnet bracket	1	VDS 61
49	Magnet	1	VDS 59
50	Magnet cable bolts	1	VDS 60
51	Throttle cable	2	VDS 62
52	Copper Bolt	1	VDS 63
53	Big washer 10	1	VDS 64
54	Welder output seat	1	VDS 56
55	Welder output seat	1	VDS 156
56	Big washer 10	1	VDS 55
57	Copper washer 10	1	VDS 56
58	Butterfly copper nut	1	VDS 58
59	Bolt	2	VDS 157

Overall view of engine generator assembly



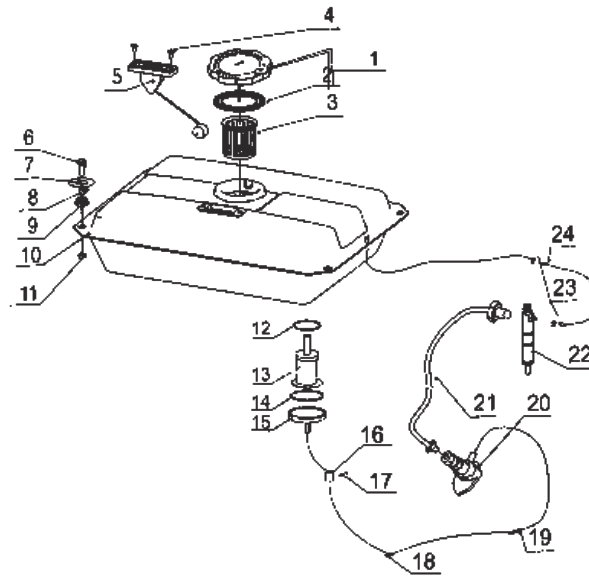
Number	Part Description	Qty	Part Number
1	Diesel engine	1	VDS1
2	Generator	1	VDS 10
3	E.ectrical control panel	1	VDS 11
4	AVR bracket	1	VDS 155
5	AVR	1	VDS 12
6	Crosshead cheese bolt	4	VDS 158

Electric panel parts drawing



Number	Part Description	Quantity	Part Number
1	Positive DC port	1	VDS 69
2	Negative DC port	1	VDS 70
3	Grounded bolt	1	VDS 71
4	Bolt	2	VDS 72
5	Large Nut	1	VDS 73
6	Bolt	2	VDS 74
7	Bolt	2	VDS 75
8	3 Prong socket	1	VDS 78
9	Current Adjusting Switch	1	VDS 77
10	Bolt	6	VDS 79
11	Electric panel bolt	6	VDS 80
12	Electric Panel	1	VDS 81
13	Starter switch	1	VDS 82
14	Large nut	6	VDS 83
15	Oil alert lamp	1	VDS 84
16	Hour meter	1	VDS 85
17	Hour meter bolts	2	VDS 36
18	DC Fuse	1	VDS 87
19	Voltmeter	1	VDS 88
20	Nut	2	VDS 89
21	4 prong socket	1	VDS 90
22	Breaker bracket	1	VDS91
23	Nut	2	VDS 92
24	Breaker	1	VDS 93
25	Wiring harness	1	VDS 94
26	Electrical box	1	VDS 95

Fuel system components



Number	Part Description	Quantity	Part Number
1	Fuel Cap	1	VDS 111
2	Seal	1	VDS 122
3	Filtering cup	1	VDS 113
4	M5 × 10 screw	2	VDS 114
5	Fuel lever indicator	1	VDS 115
6	M6 × 25 Bolt	4	VDS 116
7	Large flat washer 6	4	VDS 117
8	Fuel tank lining	4	VDS 118
9	Shock absorbing gasket	4	VDS 119
10	Fuel tank	1	VDS 20
11	M6 Nut	4	VDS 121
12	O ring seal	1	VDS 22
13	Fuel tank filter	1	VDS 23
14	O ring gasket	1	VDS 24
15	Fuel filter cover	1	VDS 25
16	Cover	1	VDS 26
17	Wing nut	1	VDS 27
18	Fuel line	2	VDS 128
19	Fuel inlet pipe	1	VDS 129
20	High pressure fuel pump	1	VDS 130
21	High pressure fuel pipe	1	VDS 131
22	Fuel injector	1	VDS 132
23	Overfill tube	2	VDS 133
24	Fuel overfill pipe	1	VDS 134



Voltzen DS2300 - Portable Diesel Welding Generator

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