

HONDA GENERATOR/WELDER

EW170

OWNER'S MANUAL





Thank you for purchasing a Honda generator/welder.

This manual covers operation and maintenance of the EW170 Generator/welder. All information in this publication is based on the latest product information available at the time of approval for printing.

Honda Motor Co., Ltd. reserves the right to make changes at any time without notice and without incurring any obligation.

No part of this publication may be reproduced without written permission.

This manual should be considered a permanent part of the welder and should remain with the welder if it is sold.

Pay special attention to statements preceded by the following words:

 WARNING Indicates a strong possibility of severe personal injury or loss of life if instructions are not followed.

CAUTION: Indicates a possibility of personal injury or equipment damage if instructions are not followed.

NOTE: Gives helpful information.

If a problem should arise, or if you have any questions about this product, consult an authorized Honda dealer.

 WARNING Welding is potentially a very hazardous activity.

It should only be attempted by a trained welder with a thorough knowledge of proper welding techniques and safety procedures.

This Honda product is designed to give safe and dependable service if operated according to instructions. Read and understand the owner's Manual before operating this product. Failure to do so could result in personal injury or equipment damage.

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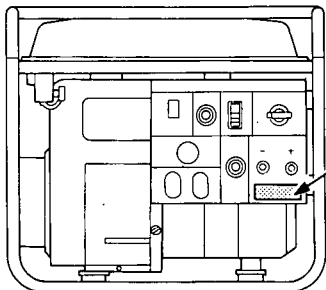
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1. GENERATOR/WELDER SAFETY

<CAUTION LABEL LOCATION>

ELECTRICAL SHOCK WARNING LABEL



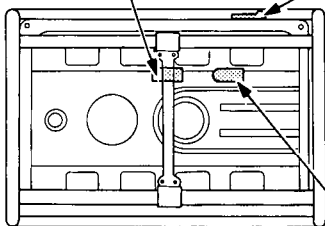
WARNING
TO PREVENT SEVERE ELECTRICAL SHOCK DO NOT INSERT FINGERS OR OBJECTS INTO THE WELDER TERMINALS.

CARBON MONOXIDE CAUTION LABEL

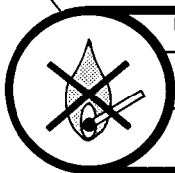
CAUTION	DO NOT USE INDOORS DUE TO DANGER OF CARBON MONOXIDE POISONING.
ATTENTION	NE PAS UTILISER DANS UN ENDROIT FERMÉ A CAUSE DU RISQUE D'EMPOISONNEMENT DU GAZ.
ATENCIÓN	NO LO USE EN LUGARES CERRADOS PORQUE EL MONOXIDE DE CARBONO ES VENENOSO.

EXHAUST CAUTION LABEL

 **HOT · EXHAUST**



GASOLINE CAUTION LABEL



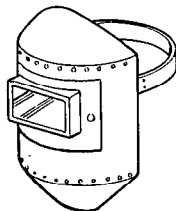
■ CHECK FOR SPILLED FUEL OR FUEL LEAKS. STOP ENGINE BEFORE REFUELING.
■ CONTRÔLER QU'IL N'Y A NI FUITE NI ESSENCE RÉPANDUE SUR L'APPAREIL. ARRÊTER LE MOTEUR AVANT DE REFAIRE LE PLEIN.
■ INSPECCIONAR PARA COMBUSTIBLE DERRAMADO O ESCAPE. PARAR MOTOR ANTES DE ECHAR.

WARNING

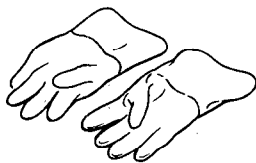
TO ENSURE SAFE OPERATION –

- The Generator/welder is a potential source of deadly electrical shocks when misused; do not operate in rain or snow or any other wet conditions.
- Place the generator/welder at least 1m (3 ft.) away from buildings or other equipment when operating.
- Operate the generator/welder on a level surface.
If it is tilted, fuel spillage may result.
- Exhaust gas contains poisonous carbon monoxide. Welding vapor is also harmful to your health. Be sure to provide adequate ventilation. Never operate the generator or perform welding in an enclosed area.
- Know how to stop the welder quickly and understand operation of all the controls. Never permit anyone to operate the welder without proper instructions.
- Keep children and pets away from the welder when it is in operation.
- Keep away from rotating parts while the engine is running.
- Use adequate eye protection. Eye protection is of the utmost importance, not only for the operator but also for any other personnel in the vicinity while welding is being done.
- Looking at a welding arc with unprotected eyes may produce severe pain and even temporary blindness.
- Eye hazards include stray flashes, reflected glare, sparks, and flying bits of molten metal.
- Be sure to use a helmet or hand-held shield with a #10 or darker filter lens. Filter lenses eliminate the harmful effects of infrared and ultraviolet radiation from the arc as well as reduce the glare from the arc light.
- Wear protective clothing such as leather gloves, cap, sleeves, jacket, apron, and high-top safety shoes. All outer clothing must be free of oil and grease.

FACE SHIELD



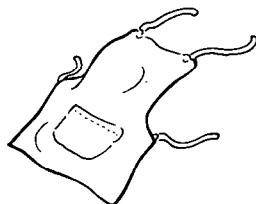
GLOVES



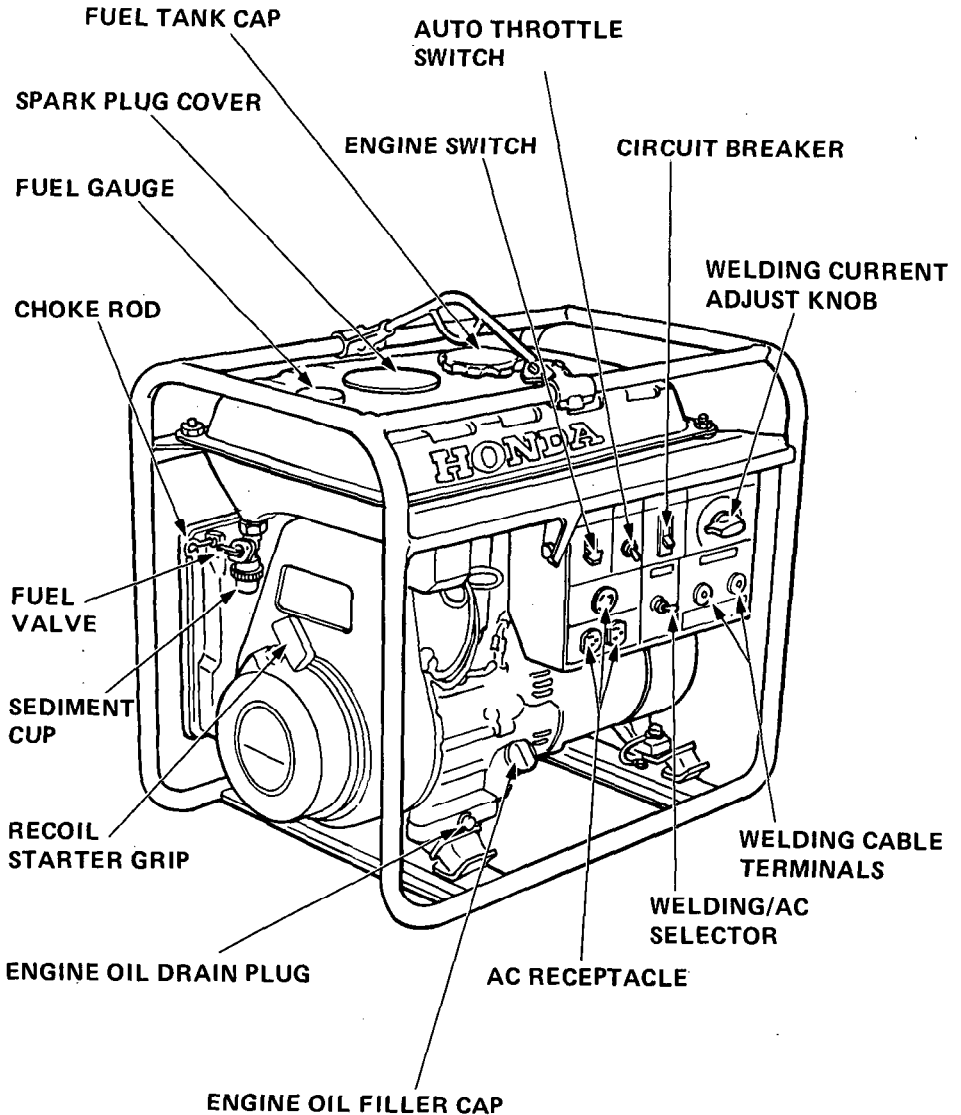
SAFETY SHOES

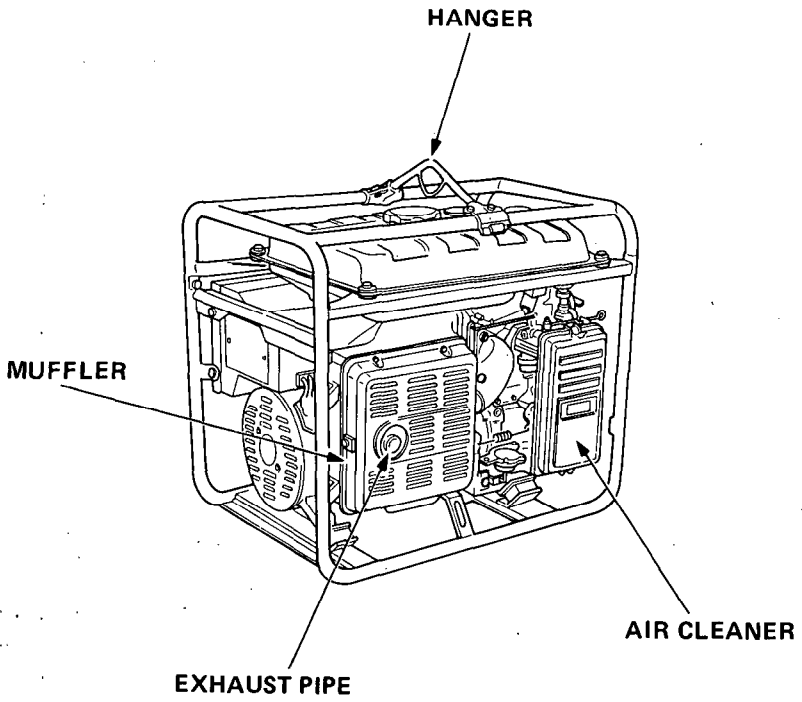


APRON



2. COMPONENT IDENTIFICATION





3. PRE-OPERATION CHECK

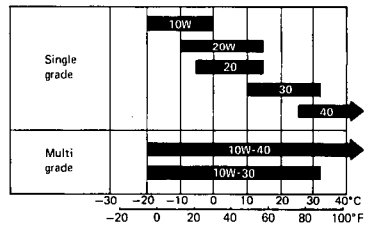
1. OIL LEVEL

CAUTION:

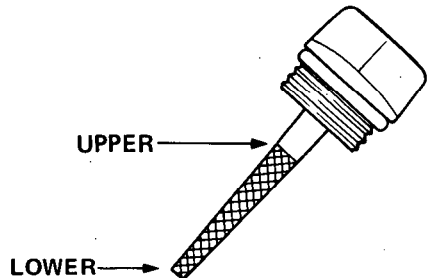
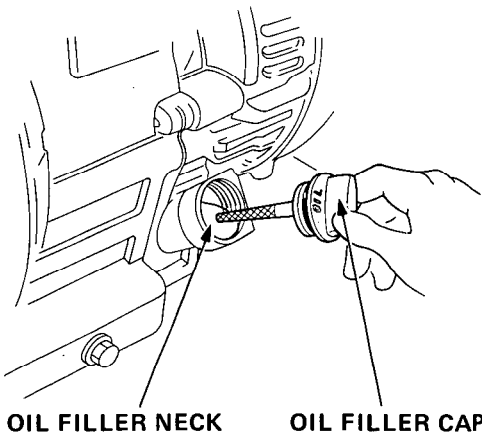
- Engine oil is a major factor affecting engine performance and service life. Non-detergent or vegetable oils are not recommended.
- Be sure to check the oil on a level surface with the engine stopped.

Use Honda 4-stroke oil, or an equivalent high detergent, premium quality motor oil certified to meet or exceed U.S. automobile manufacturer's requirements for Service Classification SE or SF. (Motor oils classified SE or SF will show this designation on the container.)

SAE 10W-40 is recommended for general all-temperature use. If single viscosity oil is used, select the appropriate viscosity for the average temperature in your area.

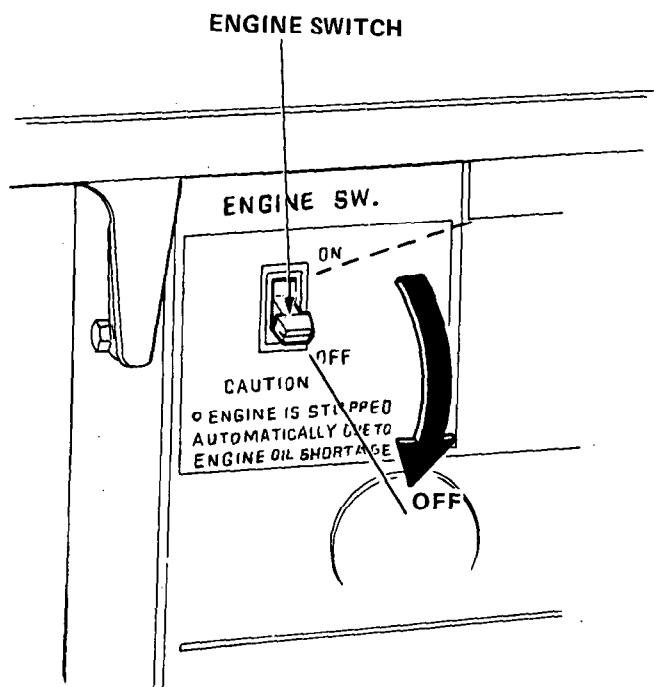


1. Remove the oil filler cap and wipe the dipstick clean.
2. Insert the dipstick into the oil filler neck, but do not screw it in.
3. If the level is low, fill to the top of the oil filler neck with the recommended oil.



NOTE: The engine is protected by an Oil Alert System which automatically turns the engine switch to the OFF position before the oil level falls below a safe limit.

If this occurs, add oil to the top of the oil filler neck, then turn the switch on and restart the engine according to the instructions on page 11.



2. Check the fuel level.

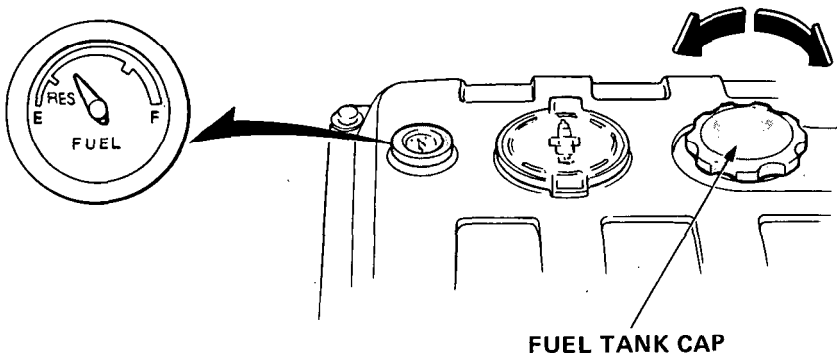
Use any regular grade automotive gasoline (unleaded gasoline is preferred) with a pump octane rating of 86 or higher.

Never use an oil/gasoline mixture or dirty gasoline. Avoid getting dirt, dust or water in the fuel tank.

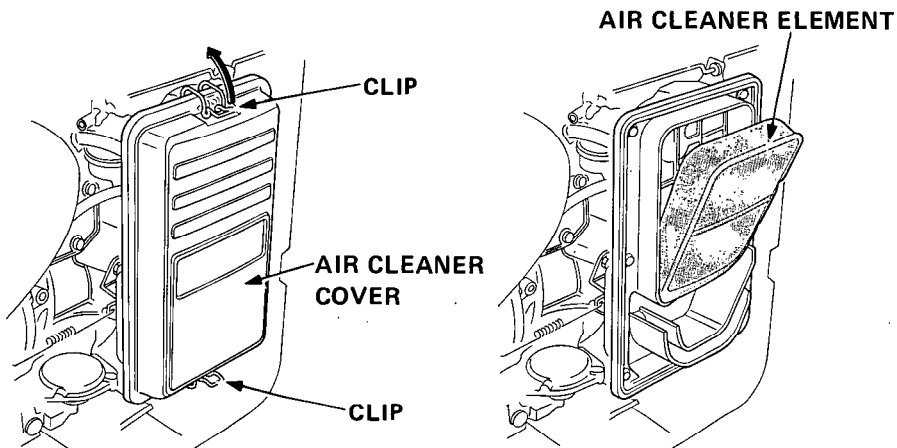
CAUTION: Gasoline substitutes are not recommended; they may be harmful to fuel system components.

WARNING

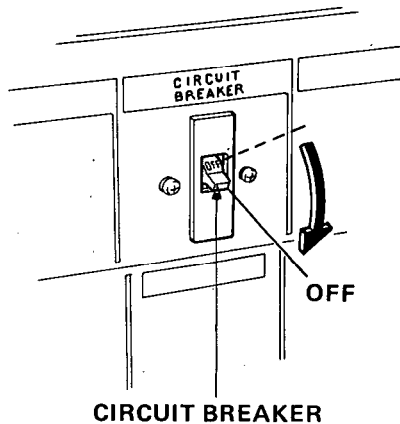
- Gasoline is extremely flammable and explosive under certain conditions. Refuel in a well ventilated area with the engine stopped.
- Do not smoke or allow flames or sparks in the area where the welder is refueled or where gasoline is stored.
- Do not overfill the tank and make sure the filler cap is securely closed after refueling.
- Be careful not to spill fuel when refueling. Fuel vapor or spilled fuel may ignite. If any fuel is spilled, make sure the area is dry before starting the engine.



-
3. Check the air cleaner element for dirt or obstruction. Refer to page 25 for cleaning instructions.

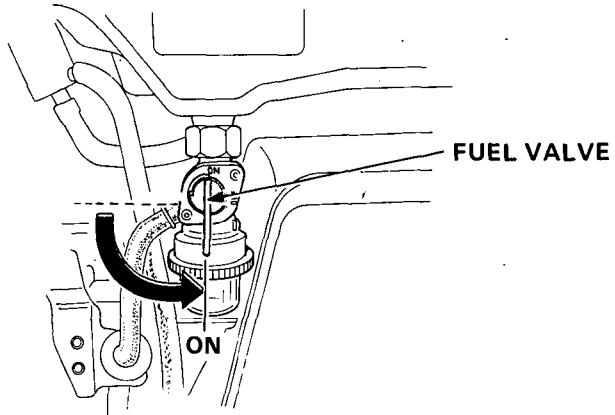


4. Make sure that the AC circuit breaker are OFF. Not only will this make starting the engine easier, but failure to do so could cause injury or equipment damage.

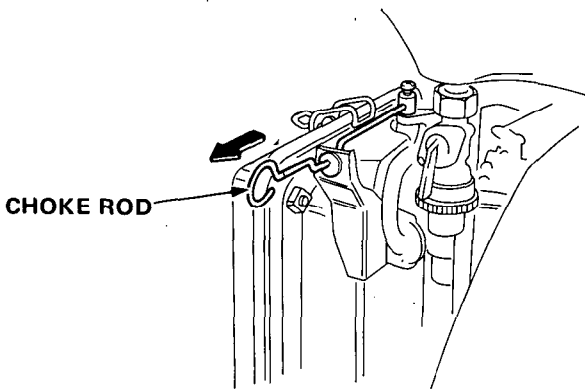


4. STARTING THE ENGINE

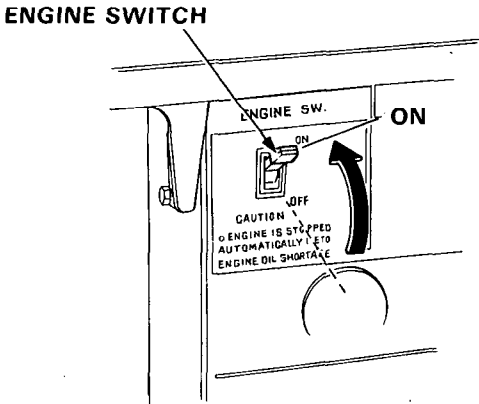
1. Turn the fuel valve on.



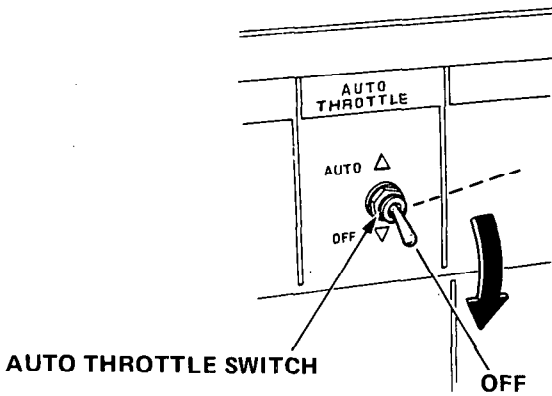
2. Pull the choke rod to CLOSE.



3. Turn the engine switch on.



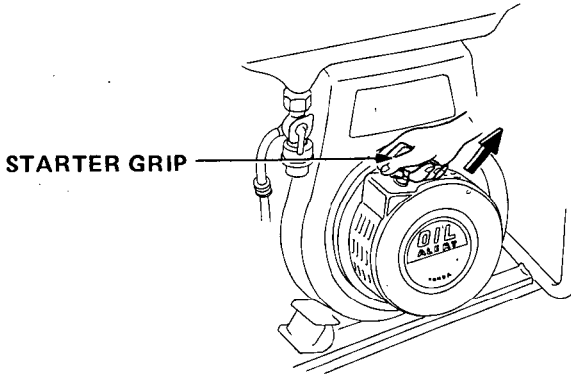
4. Turn the auto-throttle switch off.



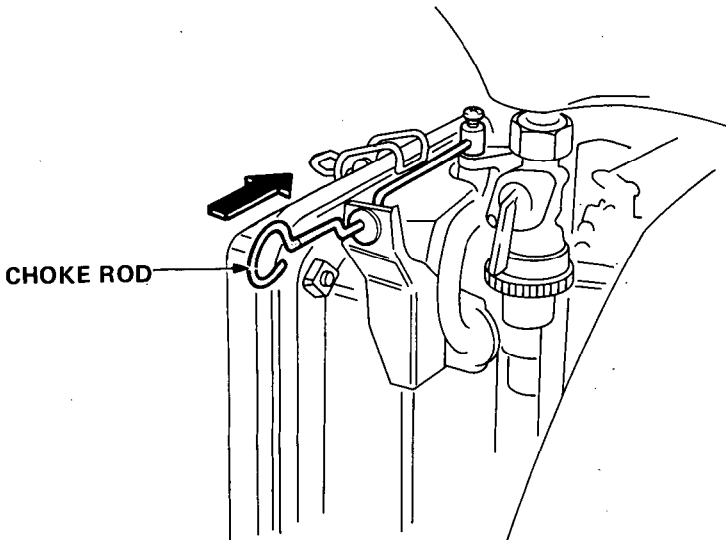
NOTE: More warm-up time will be required if the auto-throttle is left on.

5. Pull the starter grip until compression is felt, then pull briskly.

NOTE: Do not allow the starter grip to snap back. Return it slowly by hand.



6. Push the choke rod to OPEN as the engine warms up.



5. OPERATION

Auto-throttle system

With the switch in the AUTO position, engine speed is automatically reduced to an idle when all loads are turned off or disconnected. When appliances are turned on or reconnected, the engine resumes the rated speed. At OFF, the auto-throttle system does not operate.

NOTE:

- AUTO is recommended to minimize fuel consumption.
- The auto-throttle system will not respond to electrical loads of less than 1 ampere.
- The system is not effective for use with appliance that require only momentary power. To avoid extended warm-up periods, keep the switch OFF until the engine reaches operating temperature.
- AC applications

WARNING

To prevent electrical shock from faulty appliances, the generator should be grounded. Connect a length of heavy wire between the ground terminal and the ground source.

CAUTION:

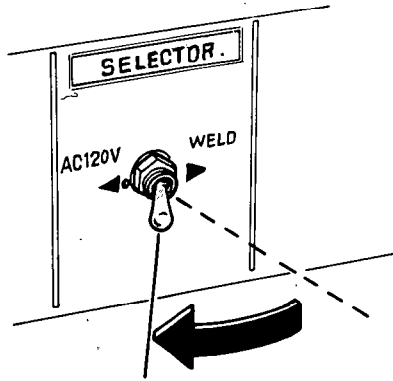
- Limit operation requiring maximum power (4.0 kVA) to 30 minutes. The total wattage of all appliances connected must be considered.
- Do not exceed the current limit specified for any one receptacle.
- Connections for emergency power to household circuits must be made by a qualified electrician and must comply with all applicable laws and electrical codes. Improper installation may result in personal injury or damage to equipment or property.

NOTE: Single phase electric motors whose capacities are up to 750W can be operated. Motors which require heavy starting current may not be used.

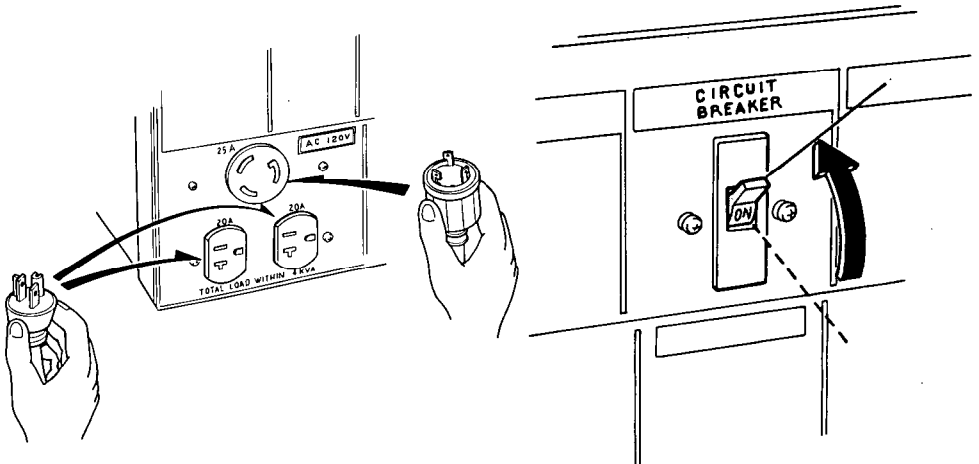
1. Turn the AC/DC (Weld) selector to the AC position.

CAUTION: AC voltage is present at the AC receptacles at all times regardless of the position of the AC/DC (WELD) selector. However, when this selector is in the DC (WELD) position, the AC voltage fluctuates considerably.

Under no circumstances should any type of electrical appliance be plugged into any of the AC receptacles when the selector is in the DC (WELD) position.



2. Plug the appliance into the proper receptacle.
 3. Turn on the appropriate AC circuit breaker.
- The appliance may now be turned on.

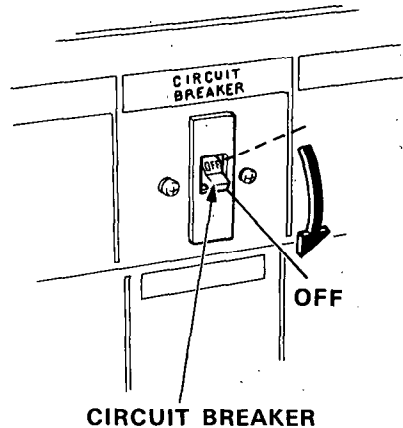
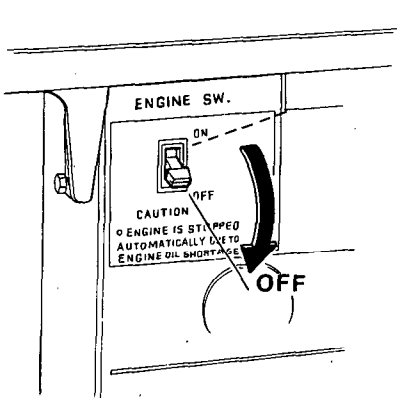


● Welding

WARNING Welding is potentially a very hazardous activity. It should only be attempted by a trained welder with a thorough knowledge of proper welding techniques and safety procedures. Be sure to read and follow the safety rules on pages 3 and 4 of this manual.

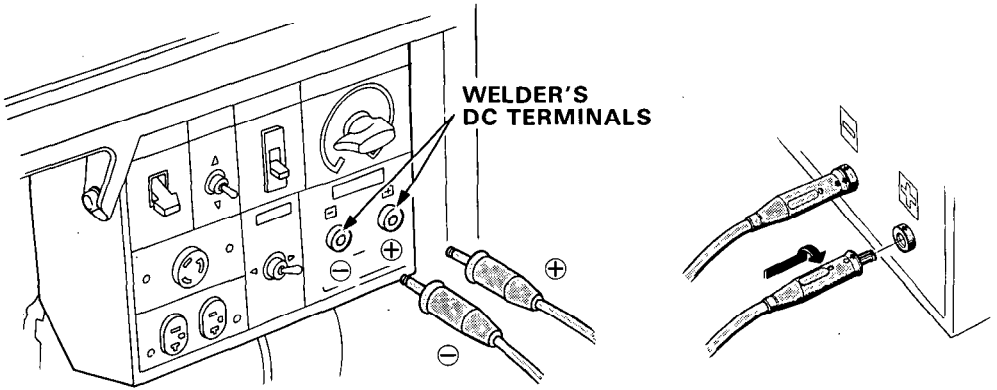
1. Put the Engine Switch in the OFF position. Turn the AC circuit breaker off and remove any plugs from the AC receptacles.

CAUTION: Voltage is present at the welding terminals whenever the engine is running regardless of the position of the AC/DC (WELD) selector.

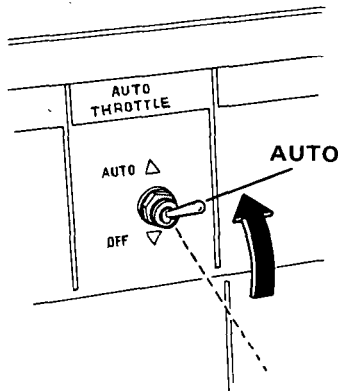


2. Connect the welding cables to the welder's DC terminals.

CAUTION: Failure to use the proper gauge cable may lead to painful burns and/or damage to equipment. See table on page 20.



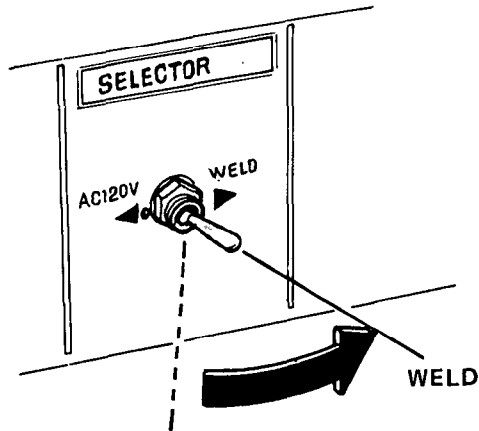
3. Start the engine, and when it has warmed up fully, turn the Auto-Throttle Switch to the AUTO position.



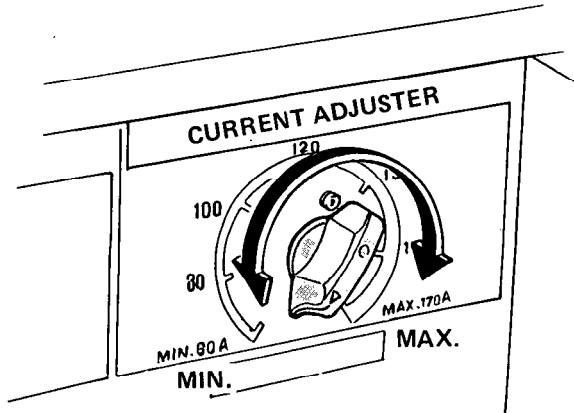
4. Turn the AC/DC (WELD) selector to the DC (WELD) position.

CAUTION:

- To avoid accidental arcing, one cable end should be firmly attached to the object to be welded and the electrode holder at the end of the other cable should be held in the operator's hand when the DC (WELD) selector is turned on.
- AC voltage is present at the AC receptacles at all times regardless of the position of the AC/DC (WELD) selector. However, when this selector is in the DC (WELD) position, the AC voltage is unregulated. Under no circumstances should any type of electrical appliance be plugged into any of the AC receptacles when the selector is in the DC (WELD) position.



5. Set the current adjuster knob to the proper current level for the job being done.



WELDING CABLE SELECTION

When choosing welding cable, it is best to allow a comfortable safety margin. The cable's length, gauge (diameter), and material all combine to determine how much current it can safely carry. The table below gives the current carrying capacity of various lengths and gauges of standard copper welding cable.

CABLE GAUGE	CABLE DIA.	LENGTH IN FEET*		
		0-50 FT.	50-100 FT.	100-250 FT.
		CURRENT CAPACITY AMPERES		
1	.644	250	200	170
2	.604	200	195	150

* Lengths given are for the combined length of the positive and negative cables.

CAUTION: An undersize cable will offer unacceptably high resistance to current flow from the welder. This will lead to poor quality welds and will shorten the life of the generator/welder.

OPERATING RATE

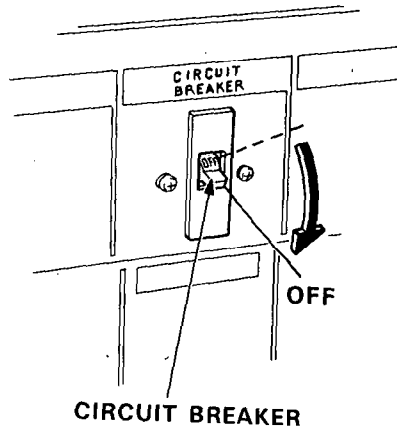
The welder should not be operated continuously at high current settings. The proportion of welding time to "rest" time is called the Operating Rate. For example: The welder's Operating Rate at 110 Amps is 70%. This means that in a given 10 minutes period actual welding can be performed for a total of 7 minutes. Use the table below to determine the Operating Rate for other current settings.

Current	170A	150A	130A	110A	Below 90A
Rate	20%	30%	50%	70%	100%

6. STOPPING THE ENGINE

1. <AC APPLICATION>

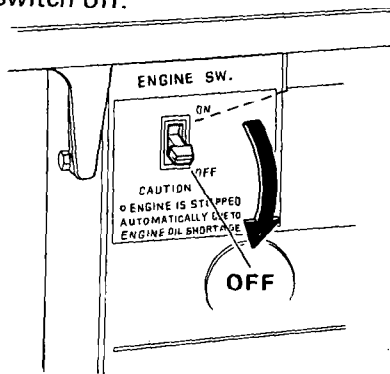
Turn the appliance switch off and the AC circuit breaker off.



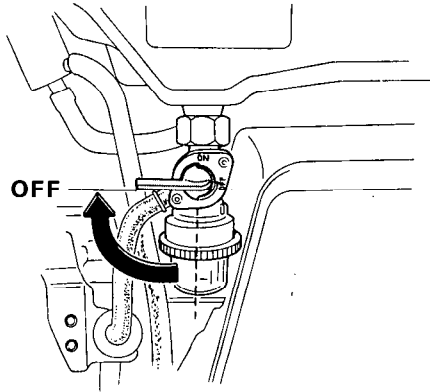
2. <WELDING>

Stop welding or cutting.

Turn the engine switch off.



3. Turn the fuel valve off.



7. MAINTENANCE

The purpose of the maintenance and adjustment schedule is to keep the generator/welder in the best operating condition.

Inspect or service as scheduled in the table on the next page.

WARNING Shut off the engine before performing any maintenance. If the engine must be run, make sure the area is well ventilated. The exhaust contains poisonous carbon monoxide gas.

CAUTION: Use only genuine HONDA parts or their equivalent. The use of replacement parts which are not of equivalent quality may damage the generator/welder.

Maintenance Schedule

REGULAR SERVICE PERIOD Perform at every indicated month or operating hour interval, whichever occurs first.		Daily	First month or 20 Hrs.	Every 3 months or 50 Hrs.	Every 6 months or 100 Hrs.	Every year or 300 Hrs.
ITEM						
Engine oil	Check Level	○				
	Change		○		○	
Air cleaner element	Check	○				
	Clean			○ (1)		
Spark plug	Clean-Adjust				○	
Spark arrester	Clean	Clean every 100 operating hours				
Fuel filter	Clean				○	
Valve clearance	Check-Adjust					○ (2)
Combustion chamber	Clean-Lap valves					○ (2)
Fuel tank	Clean					○
Fuel line	Check (Replace, if necessary)					○

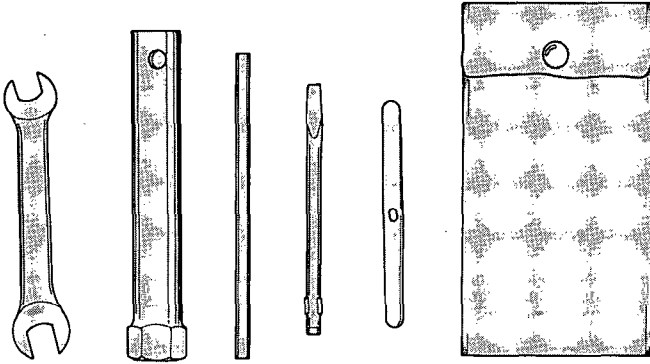
Note (1): Service more frequently when used in dusty areas.

(2): These items should be serviced by an authorized Honda dealer, unless the owner has the proper tools and is mechanically proficient. See the Honda Shop Manual.

Tool kit

The tools supplied are necessary for performing some periodic maintenance, simple adjustments and repairs.

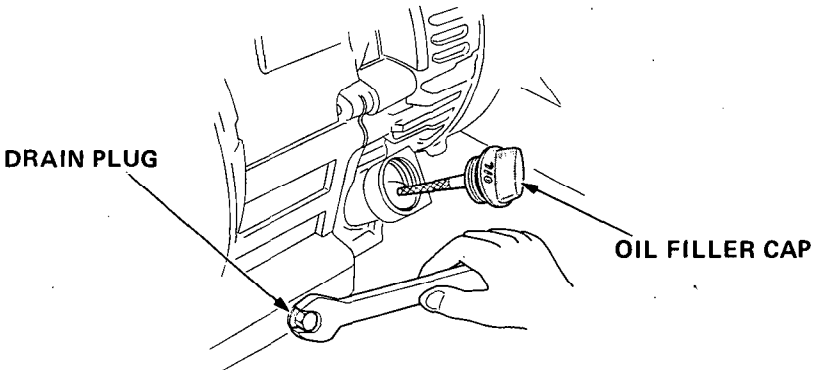
Always keep the tool kit with the generator/welder.



Changing oil

Drain the oil while the engine is still warm to assure rapid and complete draining.

1. Remove the drain plug and filler cap, and drain the oil. Retighten the drain plug securely.
2. Refill with the recommended oil (see page 7) and check the level.



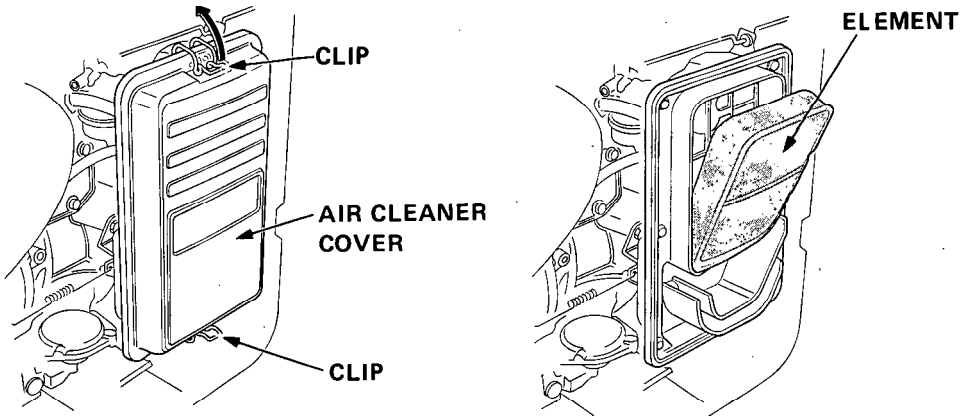
Air cleaner service

A dirty air cleaner will restrict air flow to the carburetor. To prevent carburetor malfunction, service the air cleaner regularly. Service more frequently when operating the generator/welder in extremely dusty areas.

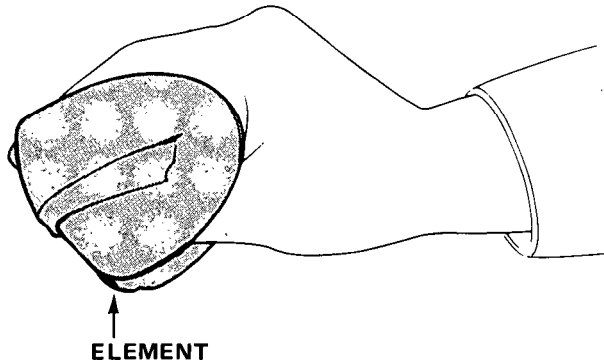
WARNING Never use gasoline or low flash point solvents for cleaning the air cleaner element. A fire or explosion could result.

CAUTION: Never run the engine without the air cleaner. Rapid engine wear will result.

1. Unsnap the clips, remove the air cleaner cover and remove the element.



2. Wash the element in a non-flammable or high flash point solvent and allow it to dry.
3. Soak the element in clean engine oil and squeeze out the excess oil.
4. Reinstall the air cleaner element and the cover.

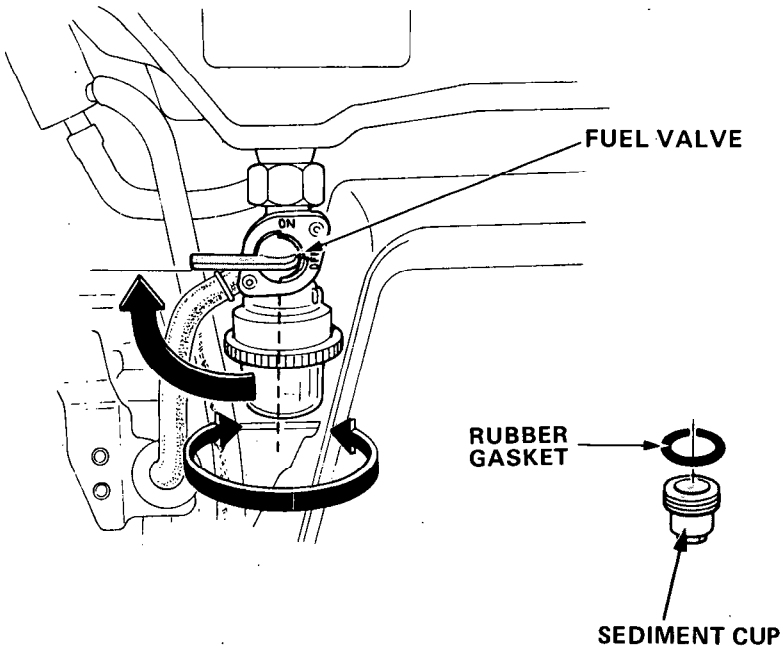


Sediment cup service

The sediment cup prevents dirt or water which may be in the fuel tank from entering the carburetor. If the engine has not been run for a long time, the cup should be cleaned.

1. Turn the fuel valve OFF. Remove the sediment cup.
2. Clean the cup thoroughly.
3. Reassemble. Do not damage the rubber gasket.

WARNING After installing the sediment cup, check for fuel leaks and make sure the area is dry before starting the engine.

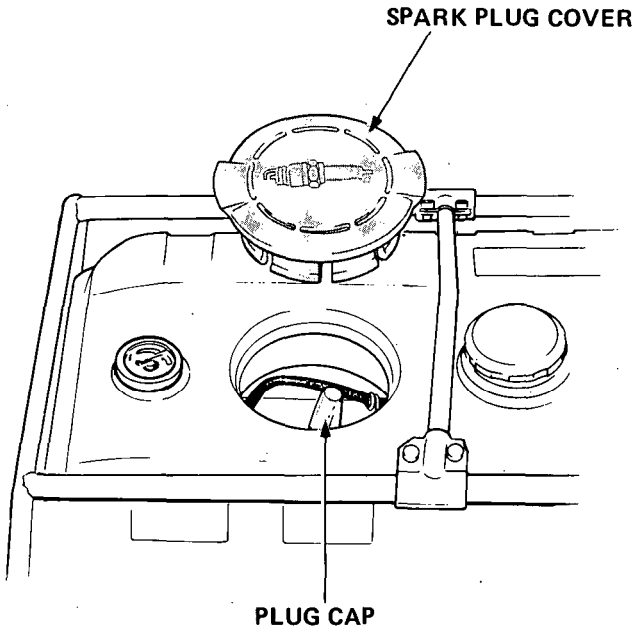


Spark plug service

Recommended spark plug: BR-4HS(NGK)
W14FR-U(ND)

To ensure proper engine operation, the spark plug must be properly gapped and free of deposits.

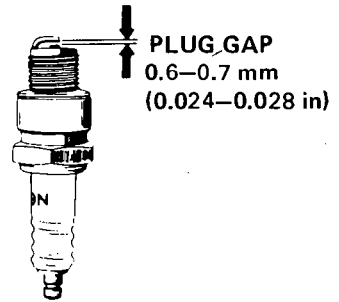
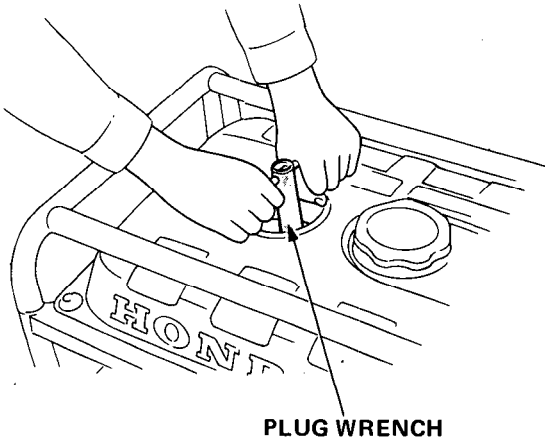
1. Remove the spark plug cover.
2. Clean any dirt from around the spark plug base.
3. Remove the spark plug cap.



4. Use the wrench supplied in the tool kit to remove the spark plug.
5. Visually inspect the spark plug. Discard it if the insulator is cracked or chipped.
6. Measure the plug gap with a feeler gauge.
The gap should be 0.6–0.7 mm (0.024–0.028 in). Correct as necessary by carefully bending the side electrode.
7. Attach the plug washer. Thread the plug in by hand to prevent cross-threading.
8. Tighten a new spark plug 1/2 turn with the wrench to compress the washer. If you are reusing a plug, it should only take 1/8–1/4 turn after the plug seats.

CAUTION:

- The spark plug must be securely tightened. An improperly tightened plug can become very hot and possibly damage the engine.
- Never use a spark plug with an improper heat range.

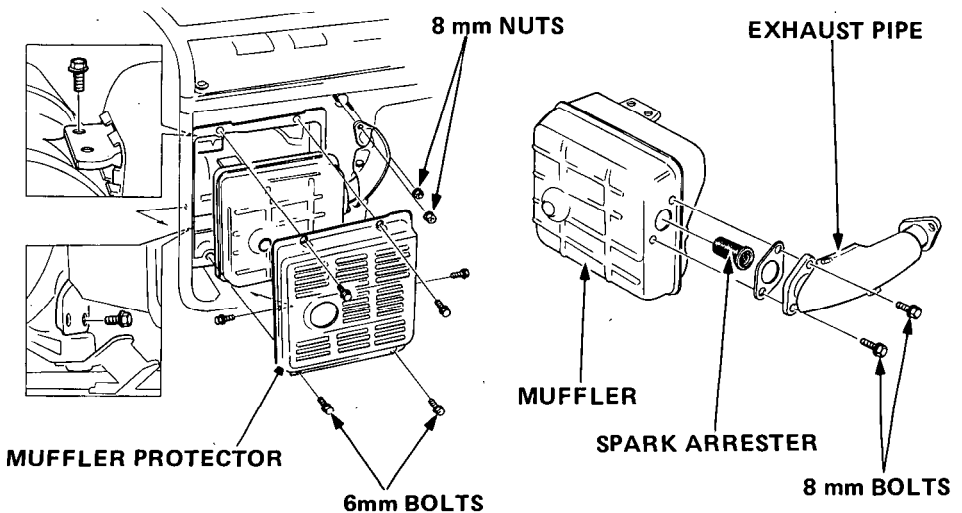


Spark arrester maintenance

WARNING If the engine has been running, the muffler will be very hot. Allow it to cool before proceeding.

CAUTION: The spark arrester must be serviced every 100 operating hours to maintain its efficiency.

1. Loosen the bolts and nuts and remove the muffler.
2. Loosen two 8 mm bolts to remove the exhaust pipe.
3. Check the muffler exhaust port for carbon deposits; clean if necessary.
4. Remove the spark arrester from the muffler.
Clean the screen with a wire brush, and inspect it for damage. Replace if necessary.
5. Install the spark arrester in the muffler.
Install the muffler and gasket and tighten the bolts and nuts securely.

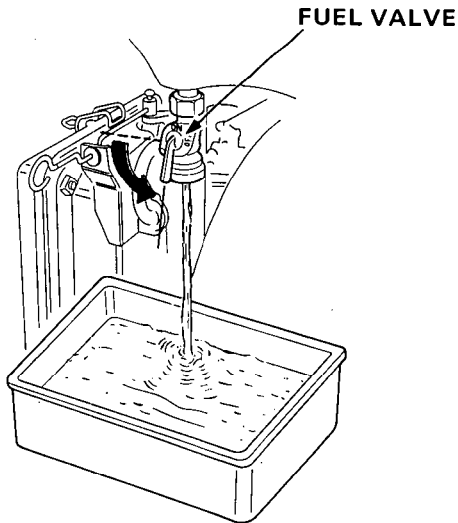


8. TRANSPORTING/STORAGE

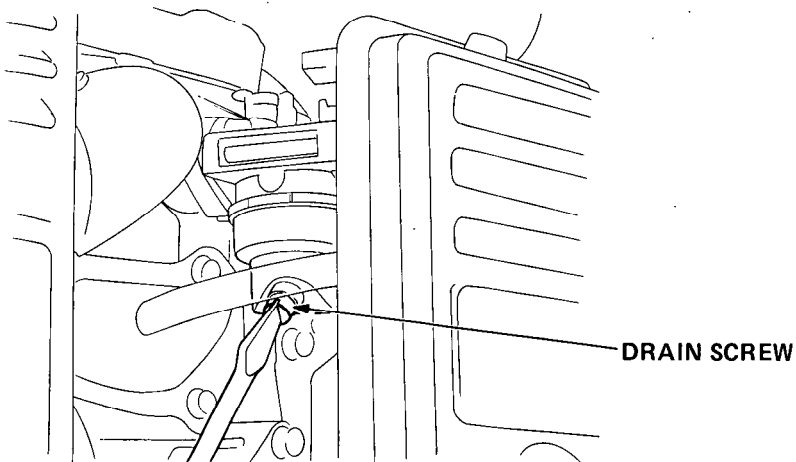
WARNING When transporting the generator/welder, turn the engine switch OFF and keep the unit level to prevent fuel spillage. Fuel vapor or spilled fuel may ignite.

Before storing the unit for an extended period:

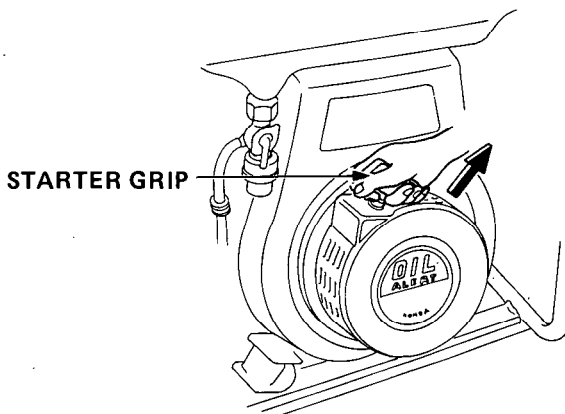
1. Be sure the storage area is free of excessive humidity and dust.
2. Drain the fuel —
 - a. With the fuel valve OFF, remove and empty the sediment cup.
 - b. Turn the fuel valve ON and drain the gasoline in the fuel tank into a suitable container.
 - c. Replace the sediment cup and tighten securely.



d. Drain the carburetor by loosening the drain screw. Drain the gasoline into a suitable container.



e. Pull the starter grip until resistance is felt; the piston is coming up on its compression stroke. At this position, the exhaust and intake valves are closed, and this will help protect the engine from corrosion.



f. Change the engine oil if the unit is to be stored for more than 1 year.

9. TROUBLESHOOTING

The chart that follows relates various generator/welder troubles to their possible causes and corrections. Many of the troubles listed are closely related, and elimination of one may eliminate others. Before taking the unit to your Honda Dealer, perform the following steps.

■ When the engine will not start:

Is the correct starting procedure being used?

Check the following :

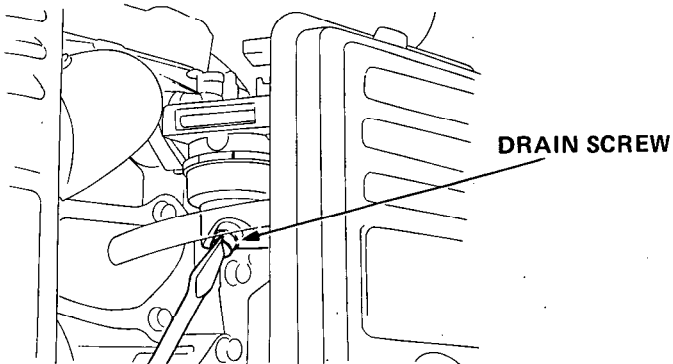
- Fuel valve position
- Engine switch position
- Choke rod position
- Starter grip operation

Is there enough fuel in the fuel tank?

Is gasoline reaching the carburetor?

To check, loosen the drain screw with the fuel valve on.

WARNING If any fuel is spilled, make sure the area is dry before testing the spark plug or starting the engine. Fuel vapor or spilled fuel may ignite.





Is there enough oil in the crankcase?

- The oil alert system prevents the engine from being started if the level of oil in the crankcase falls below prescribed level.



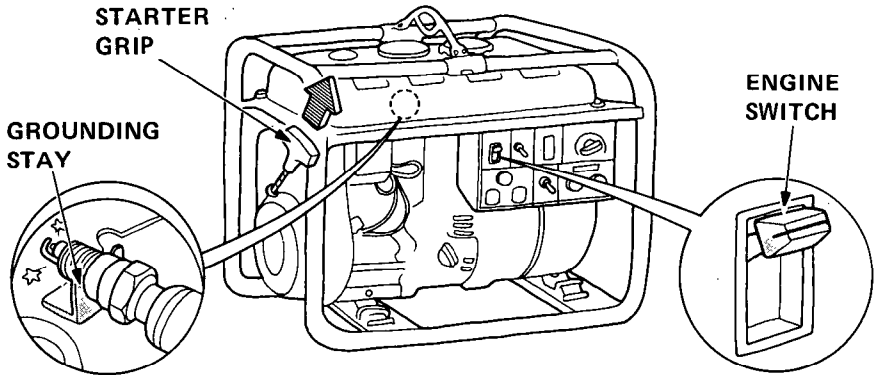
Is the spark plug wet or fouled?

- Clean the spark plug.
- Check the plug gap and adjust.



Is there spark at the spark plug?

- 1) Remove the spark plug cap. Clean any dirt from around the spark plug base, and remove the spark plug.
- 2) Install the spark plug in the plug cap.
- 3) Turn the engine switch on. Grounding the side electrode to the stay, pull the recoil starter to see if sparks jump across the gap.



- If there are no sparks, replace the plug.
- If a new plug produces no sparks or if there are sparks and the engine still does not start, take the generator to the dealer.

■ When the welding arc is weak :

Is the cable size correct? (Page20)

- Length
- Gauge/Diameter



Is the proper electrode being used?

■ When there appears to be no electricity at the AC receptacles:

- Are the circuit breakers tripped?
- Is the generator over-loaded?
- Is the appliance in good operating condition?

Disconnect the appliance from the generator and carefully inspect it and its power cord for defects.

10. SPECIFICATIONS

TYPE AND DIMENSIONS

Type	Honda generator/welder EW170
Overall length	695 mm (27.4 in.)
Overall width	465 mm (18.3 in.)
Overall height	695 mm (27.4 in.)
Dry weight	104 kg (229 lb.)

ENGINE

Model	GE400
Type	4-stroke, side valve, 1 cylinder
Displacement	406 cm ³ (24.8 cu.in.)
Bore x stroke	86 x 70 mm (3.4 x 2.8 in.)
Rated output	8.0 PS/3,600 rpm
Cooling system	Forced air cooling
Ignition system	Flywheel magneto
Fuel tank capacity	16.5 liters (4.3 US gal.)
Oil capacity	1.2 liters (1.27 US qt.)

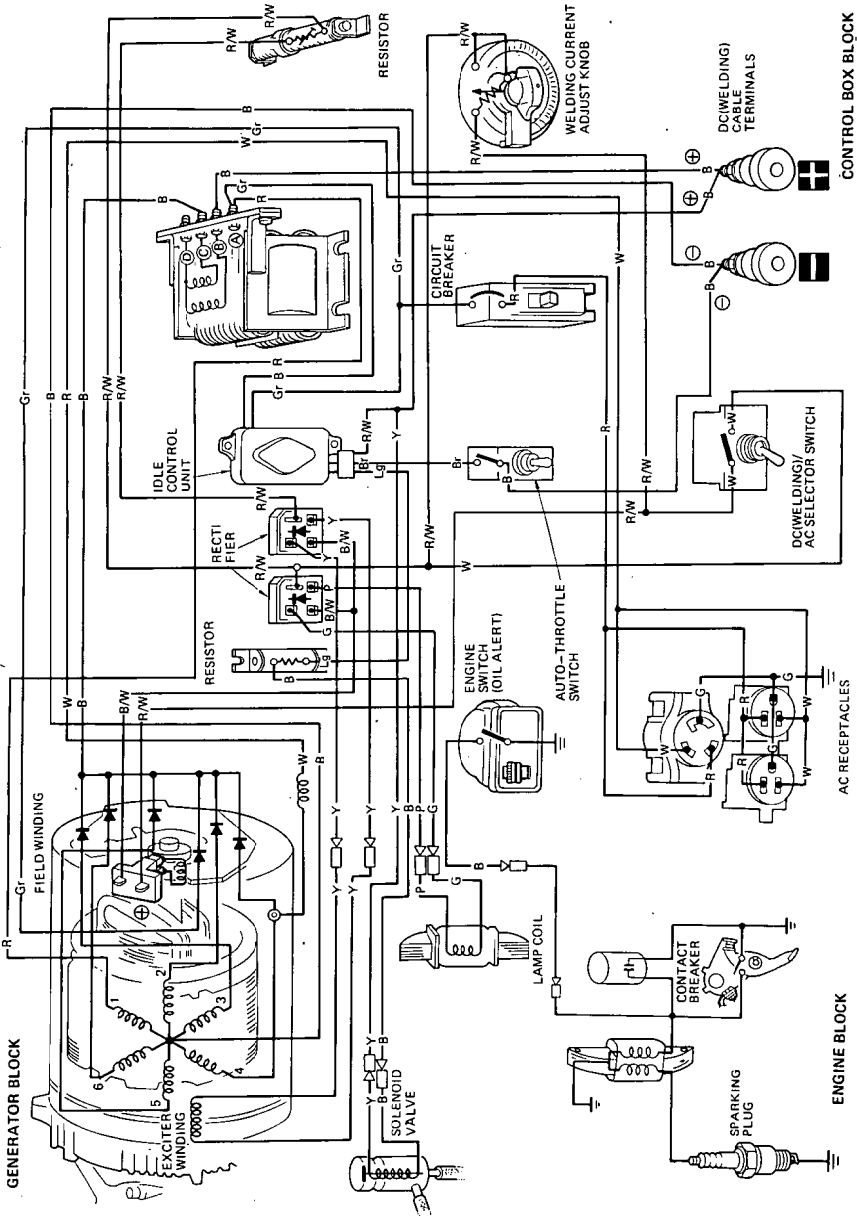
DC (WELDING) OUTPUTS

Generator	2-pole rotating field magnet
Phase	6-phase, semi-wave rectification
Rated current	130A
Rated voltage	26.5V
Welding current	55–170A
Operating rate	50% / 130A
Rated rpm	3,600 rpm
Electrode diameter	2.6–4.0 mm (0.10–0.16 in.)

AC OUTPUTS

Maximum output	4 kVA (4,000W)
Rated output	4.0 kVA (4,000W)
Rated voltage	120V
Power factor	1.0
Phase	Single
Frequency	60 Hz

11. WIRING DIAGRAM



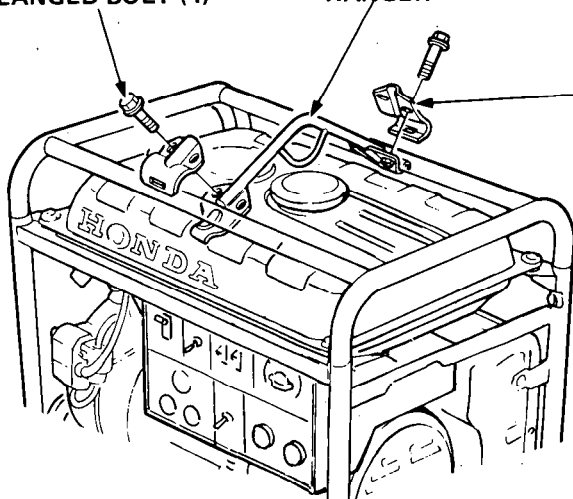
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12. HANGER KIT INSTALLATION

8 x 16 mm FLANGED BOLT (4)

HANGER

BRACKET

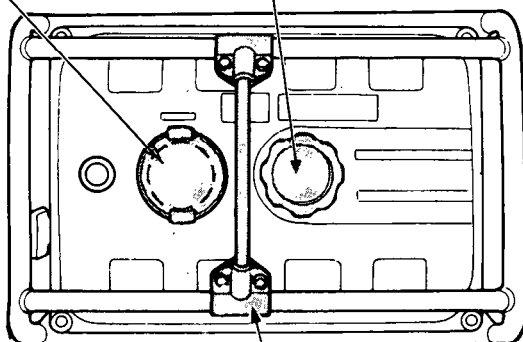


CAUTION:

- Position the hanger at the generator's balance point, midway between the spark plug cover and the fuel tank cap.
- Fit the end tabs of the hanger through the bracket slots, and bolt the brackets to the hanger.

SPARK PLUG COVER

FUEL TANK CAP



HANGER

13. WARRANTY SERVICE

Owner Satisfaction

Your satisfaction and goodwill are important to your dealer and to us. Normally, any problems with the product will be handled by your dealer's service department. Sometimes, however, despite the best intentions, of all concerned, misunderstandings can occur. If your problem has not been handled to your satisfaction, we suggest you take the following action:

- Discuss your problem with a member of dealership management. Often complaints can be quickly resolved at that level. If the problem has already been reviewed with the Service Manager, contact the owner of the dealership or the General Manager.
- If your problem still has not been resolved to your satisfaction, contact the Motorcycle and Power Products Customer Relations Department at the regional office of American Honda Motor Co., Inc. in your area. Regional office locations are shown on the following page. We will need the following information in order to assist you:
 - Your name, address, and telephone number
 - Product model and serial number
 - Date of purchase
 - Dealer name and address
 - Nature of the problem

After reviewing all the facts involved, you will be advised of what action can be taken. Please bear in mind that your problem will likely be resolved at the dealership, using the dealer's facilities, equipment, and personnel, so it is very important that your initial contact be with the dealer.

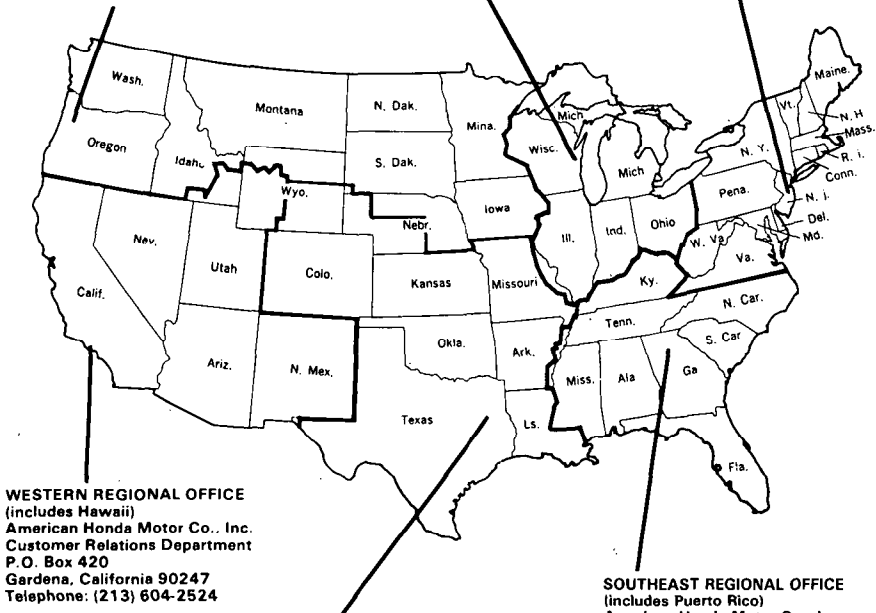
Your purchase of a Honda product is greatly appreciated by both the dealer and American Honda Motor Co., Inc. We want to assist you in every way possible to assure your complete satisfaction with your purchase.

Regional Office Locations

NORTHWEST REGIONAL OFFICE
 (includes Alaska)
 American Honda Motor Co., Inc.
 Customer Relations Department
 P.O. Box 30285
 Portland, Oregon 97220
 Telephone: (503) 255-1186

MIDWEST REGIONAL OFFICE
 American Honda Motor Co., Inc.
 Customer Relations Department
 P.O. Box 22
 Greendale, Wisconsin 53129
 Telephone: (414) 421-9300

NORTHEAST REGIONAL OFFICE
 American Honda Motor Co., Inc.
 Customer Relations Department
 P.O. Box 749
 Moorestown, New Jersey 08057
 Telephone: (609) 778-1100

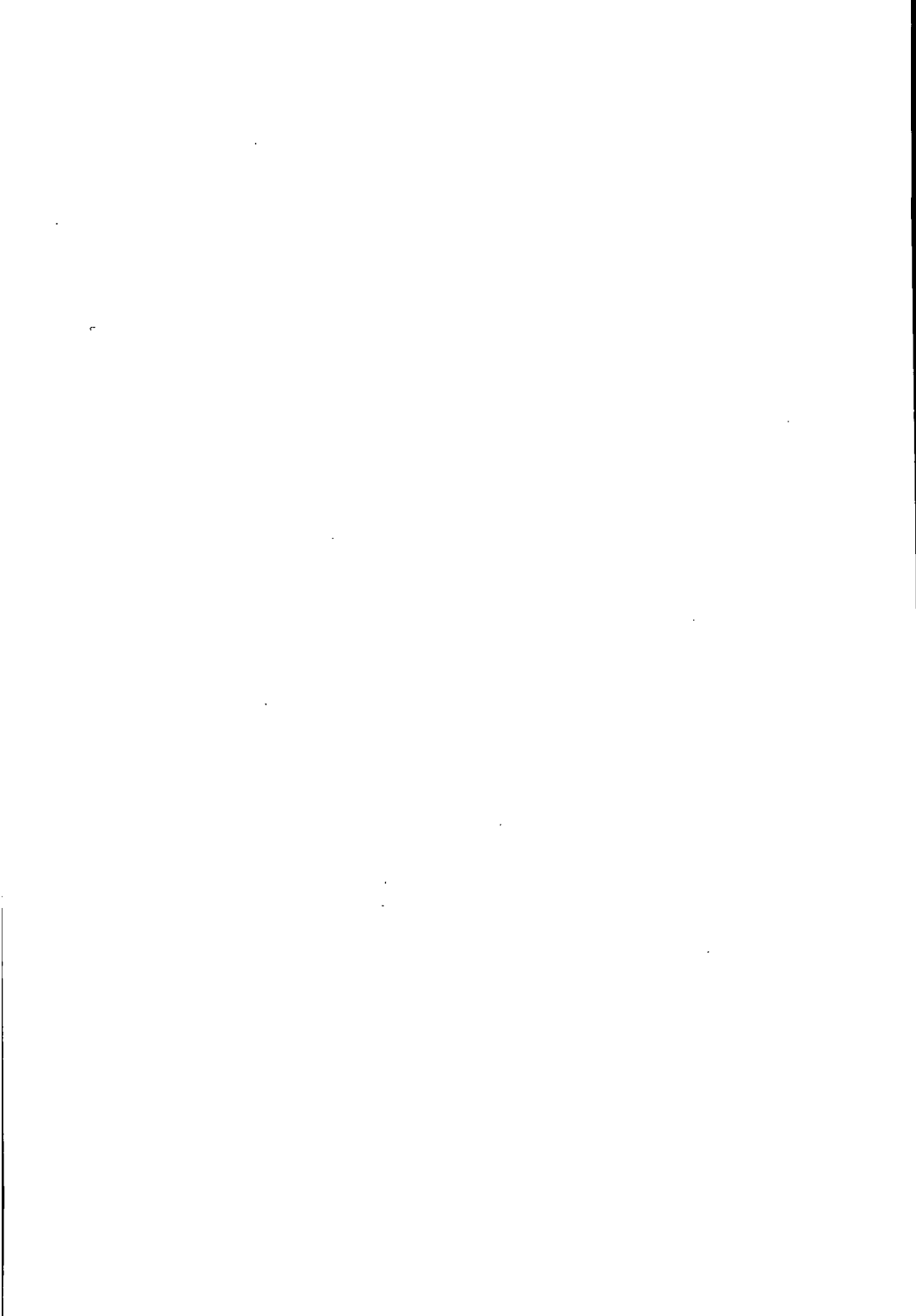


WESTERN REGIONAL OFFICE
 (includes Hawaii)
 American Honda Motor Co., Inc.
 Customer Relations Department
 P.O. Box 420
 Gardena, California 90247
 Telephone: (213) 604-2524

SOUTHWEST REGIONAL OFFICE
 American Honda Motor Co., Inc.
 Customer Relations Department
 P.O. Box 5406
 Irving, Texas 75062
 Telephone: (214) 258-6883

SOUTHEAST REGIONAL OFFICE
 (includes Puerto Rico)
 American Honda Motor Co., Inc.
 Customer Relations Department
 1500 Morrison Parkway
 Alpharetta, Georgia 30201
 Telephone: (404) 442-2000

MEMO





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HONDA MOTOR CO., LTD. TOKYO, JAPAN