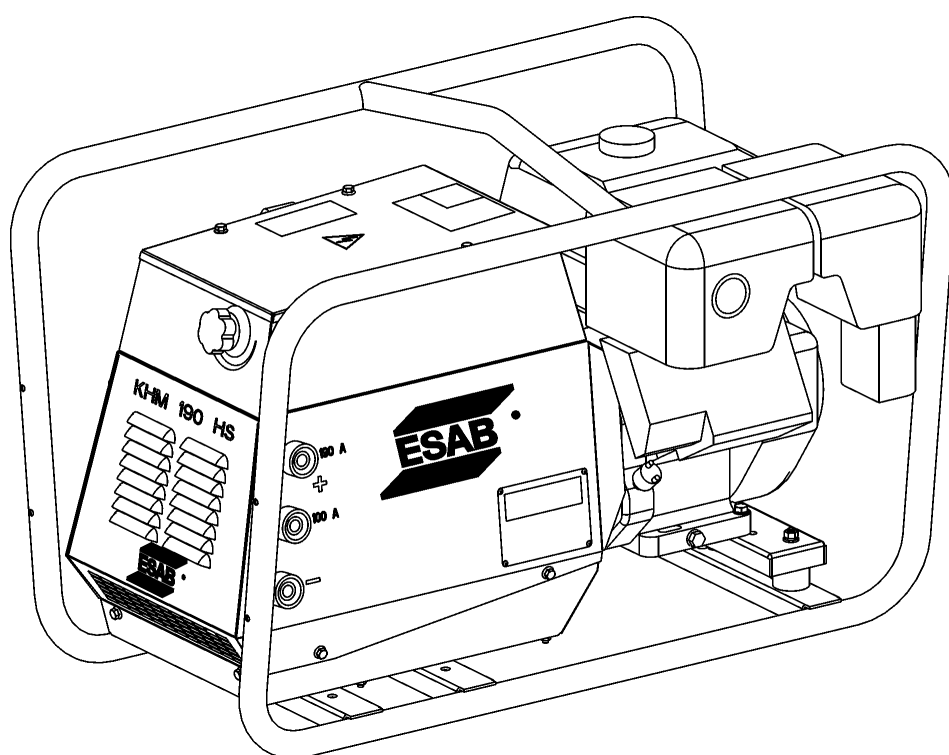


KHM 190 HS



Instruction manual
Bedienungs- und Wartungsanleitung
Emploi et entyretien
Gebruiks- en onderhoudshandleiding



DECLARATION OF CONFORMITY

ESAB Welding Equipment AB, S--695 81 Laxå, Sweden, gives its unreserved guarantee that the engine driven welder KHM 190 HS with the code number 0794000880/1/4 complies with the Community Directives and related modifications 98/37/CE - 73/23/CE - 89/336/CE and, in order to check the conformity, the following harmonized standards EN 292-1 - EN 292-2 - EN 60974-1 - EN 60204-1 - EN 50199 and other standards or directives like 84/535/CE - ISO 8528 have been consulted .

Laxå 2001

A handwritten signature in black ink, appearing to read "Joakim Cahlin".

Joakim Cahlin
ESAB Welding Equipment AB
695 81 LAXÅ
SWEDEN

Tel. + 46 58 481000

fax +46 584 411924

Dear Customer,

We wish to thank you for having bought this product.

Please take time to read this manual and familiarize yourself with the machine before attempting to use it.

If you should have questions or problems please contact the nearest authorized Service Center. They have the experience and original spare parts. The use of non-original spare parts will void the warranty.

TABLE OF CONTENTS


<u>DESCRIPTION</u>	<u>PAGE</u>
<u>GENERAL INFORMATION</u>	
INFORMATION ABOUT THIS MANUAL	M 2
DESCRIPTION - SYMBOLS	M 2.1
PRECAUTIONS - GENERAL	M 2.5
PRECAUTIONS - ENGINE DRIVEN WELDERS	M 2.5.1
TRANSPORT	M 4.1
ASSEMBLY OF TROLLEY	M 6
INSTALLATION INFORMATION	M 2.6.1, M 2.7
<u>OPERATION</u>	
UNPACKING	M 3
PREPARING THE UNIT	M 25
STARTING THE ENGINE	M 26
STOPPING THE ENGINE	M 27
CONTROLS	M 31
USE AS A WELDER	M 34
USE AS A GENERATOR	M 37
MAINTENANCE	M 43.1
STORAGE	M 45.1
TECHNICAL DATA AND MACHINE DESCRIPTION	M 51, 51.1
<u>SCHEMATICS AND SPARE PARTS</u>	
ORDERING SPARE PARTS	R 1,
WIRING DIAGRAM - AUXILIARY	M 61.1
WIRING DIAGRAM – WELDING POWER	M 61.2
WIRING DIAGRAM – AUXILIARY	M 61.3
WIRING DIAGRAM – AUXILIARY	M 61.4
WIRING DIAGRAM – WELDING POWER	M 61.5
DESCRIPTION - ELECTRICAL SYSTEM	M 60
SPARE PARTS	CG 4, CG 4.1,
SPARE PARTS	CG 5, CG 5.1,
SPARE PARTS	CG 6, CG6.1
KIT DECAL	
TROLLEY	KA 4

GENERAL INFORMATION

- In the envelope where you found this manual you will also find an Owner's manual for the engine, and accessories (if required).

This product has been designed for welding and generation of electrical power for tools and other electrical devices used in construction; ANY OTHER USE, is not permitted and we cannot be held responsible for injuries or damages resulting from such incorrect use.

Our products are made in conformity with the safety norms in force in order to avoid injury to persons or damage to the machine or other things.

 **Warranty is not valid if not carried out by ESAB authorized service agent.**

Making modifications to the machine without our written authorization will void the warranty and release us from any liability.


ABOUT THIS MANUAL

Before using the machine please read this manual attentively and follow the instructions contained in it. This will help avoid problems, possible injury and damage to the machine.

The manual is written for experienced, qualified personnel, who are familiar with health and safety laws and related regulations.

This manual is an integral part of the product and should be kept in a safe place so that it will be available for consultation during the life of the product. If the machine is sold the manual should be transferred to the new owner.

Some figures contained in this manual are designed to help identify certain parts and may not correspond to the machine in your possession.

 **Notice:** *the manufacturer may make improvements or modifications to the product or its accessories as described in this manual without updating the manual.*

HEADINGS USED IN THIS MANUAL

The headings used in this manual are designed to call your attention to potential hazards and important aspects of the operation of the machine...



DANGEROUS

Indicates a strong possibility of severe personal injury or death if instructions are not followed.



WARNING

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



CAUTION

Indicates that equipment or property damage can result if instructions are not followed.



IMPORTANT



NOTE



ATTENTION

These headings give helpful information about the preparation, operation and care of the machine.



GENERAL SYMBOLS



STOP – Read with great attention



Read with attention



WRENCH - Use the correct tools for the type of work being done



WARNING SYMBOLS



ATTENTION - If this advice is not followed people or things can be hurt or damaged.



HIGH VOLTAGE - Do not touch – risk of injury or death.



FIRE - Risk of fire.



HEAT - Hot surfaces.



EXPLOSIVE - Explosive material or danger of explosion, in general.



NO WATER - Do not use water as it can cause shortcircuits or other damage.



NO SMOKING - Cigarettes, matches or lighters can start a fire or explosion.



ACIDS - Danger of corrosion or burns.

SAFETY SYMBOLS

Use the correct protective devices for the type of welding being done



Use protective clothing, etc. specifically designed for the type of welding being done.

Protect yourself when doing maintenance on the machine -



It is advisable to protect yourself when carrying out maintenance, such as filling the battery, refuelling, etc.

Pay attention to safety precautions when moving the machine



Refer to the instructions before moving the machine

Wear indicated safety clothing -



It is compulsory to wear the personal protection items shown when using the equipment.

Use required safety devices -



Safety devices suitable for the type of welding and the location of the job must be used.

Do not use water on electrical fires -



It is prohibited to use water to put out fires in electrical equipment.

Do not touch without having disconnected the electricity -



It is prohibited to work on the machine until the electricity has been turned off.

Welding prohibited -



It is forbidden to weld in areas containing explosive gases.

⚠ IMPORTANT

- ☞ Read and understand these instructions.
- ☞ Before installing, operating or servicing this equipment, read the operating manuals of the welder and of the engine.
- ☞ Not observing the information in the manuals can result in personal injury and/or damage to the equipment and other property.
- ☞ Respect all safety regulations and laws when operating this equipment.

⚠ WARNING

Do not remove or disable protective devices

Removing or disabling protective devices on the machine is prohibited.

Do not use the machine if it is not in good technical condition

The machine must be in good working order before being used. Defects, especially those which regard the safety of the machine, must be repaired before using the machine.



☞ **FIRST AID.** In case the operator should be sprayed by accident, from corrosive liquids a/o hot toxic gas or whatever event which may cause serious injuries or death, predispose the first aid in accordance with the ruling labour accident standards or of local instructions.

Skin contact	Wash with water and soap
Eyes contact	Irrigate with plenty of water, if the irritation persists contact a specialist
Ingestion	Do not induce vomit as to avoid the intake of vomit into the lungs, send for a doctor
Suction of liquids from lungs	If you suppose that vomit has entered the lungs (as in case of spontaneous vomit) take the subject to the hospital with the utmost urgency
Inhalation	In case of exposure to high concentration of vapours take immediately to a non polluted zone the person involved

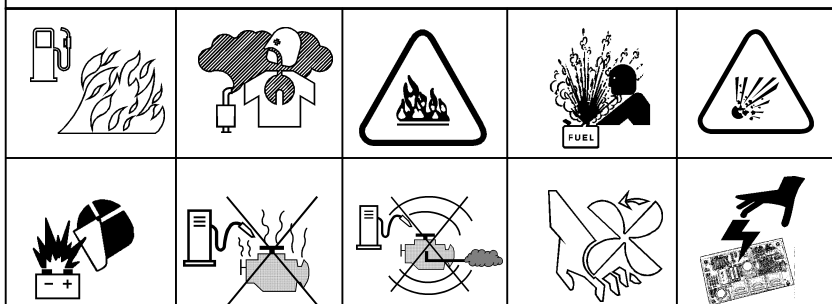


☞ **FIRE PREVENTION.** In case the working zone, for whatsoever cause goes on fire with flames liable to cause severe wounds or death, follow the first aid as described by the ruling norms or local ones.

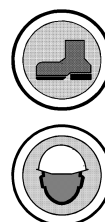
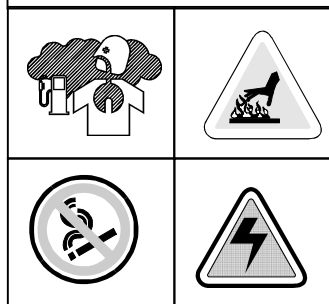
EXTINCTION MEANS

Appropriated	Carbonate anhydride (or carbon dioxide) powder, foam, nebulized water
Not to be used	Avoid the use of water jets
Other indications	Cover eventual shedding not on fire with foam or sand, use water jets to cool off the surfaces close to the fire
Particular protection	Wear an autorespiratory mask when heavy smoke is present
Useful warnings	Avoid, by appropriate means to have oil sprays over metallic hot surfaces or over electric contacts (switches, plugs, etc.). In case of oil sprinkling from pressure circuits, keep in mind that the inflammability point is very low.

⚠ WARNING



⚠ CAUTION



WARNING

THE MACHINE MUST NOT BE USED IN AREAS WITH EXPLOSIVE ATMOSPHERE

PRECAUTIONS

The operator of the welder is responsible for the security of the people who work with the welder and for those in the vicinity.

The security measures must satisfy the rules and regulations for engine driven welders.

The information given below is in addition to the local security norms.



⇒ Make sure that the area is safe before starting any welding operation.

⇒ Do not touch any bare wires, leads or contacts as they may be live and there is danger of electric shock which can cause death or serious burns. The electrode and welding cables, etc. are live when the unit is operating.

⇒ Do not touch any electrical parts or the electrode while standing in water or with wet hands, feet or clothes.

⇒ Insulate yourself from the work surface while welding. Use carpets or other insulating materials to avoid physical contact with the work surface and the floor.

⇒ Always wear dry, insulating gloves, without holes, and body protection.

⇒ Do not wind cables around the body.

⇒ Use ear protections if the noise level is high.

⇒ Keep flammable material away from the welding area.

⇒ Do not weld on containers which contain flammable material.

⇒ Do not weld near refuelling areas.

⇒ Do not weld on easily flammable surfaces.

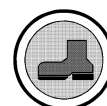
⇒ Do not use the welder to defrost (thaw) pipes.

⇒ Remove the electrode from the electrode holder, when not welding.

⇒ Avoid inhaling fumes by providing a ventilation system or, if not possible, use an approved air breather.

⇒ Do not work in closed areas where there is no fresh air flow.

⇒ Protect face and eyes (protective mask with suitable dark lens and side screens), ears and body (non-flammable protective clothes).





NOTE

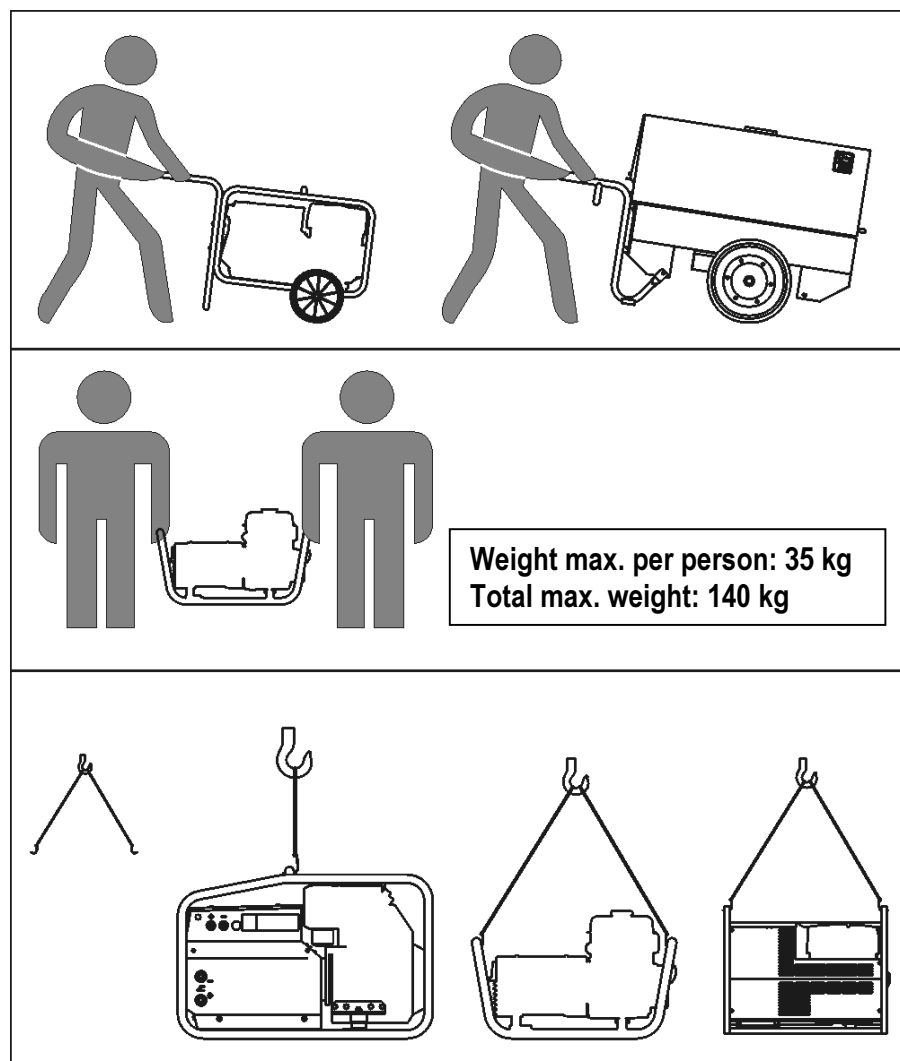
In case you have to move or transport the machine, follow the instructions as shown in the figures.

Ship the machine **without** petrol in the tank, **without** oil in the engine and **without** electrolyte in the battery. Be sure that the transportation devices are adequate for the size and weight of the machine.

DO NOT TRANSPORT ACCESSORIES OR OTHER ITEMS WHICH COULD INCREASE THE WEIGHT AND/OR CHANGE THE CENTER OF GRAVITY OF THE MACHINE.

DO NOT DRAG THE MACHINE OR TOW IT ON PUBLIC ROADS UNLESS IT IS MOUNTED ON A HOMOLOGATED TRAILER.

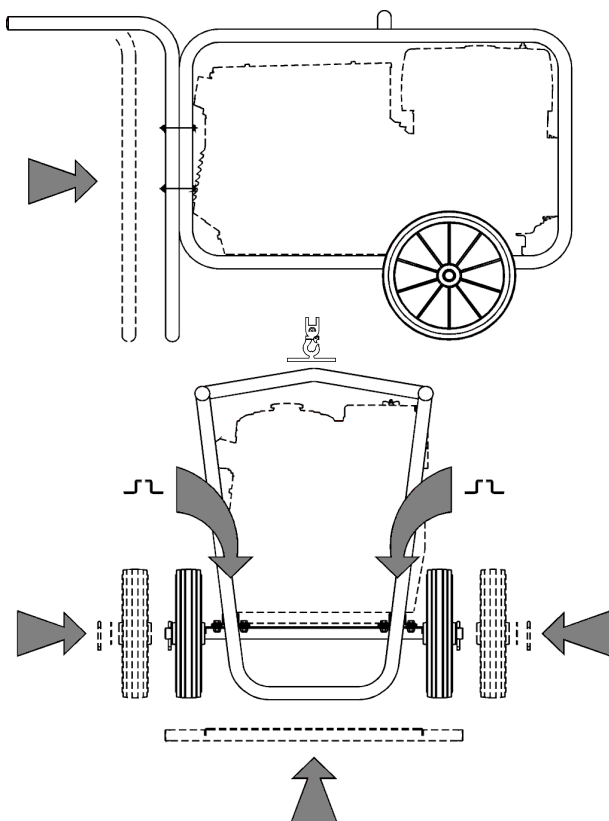
Not following these instructions could cause injury or damage to the machine.



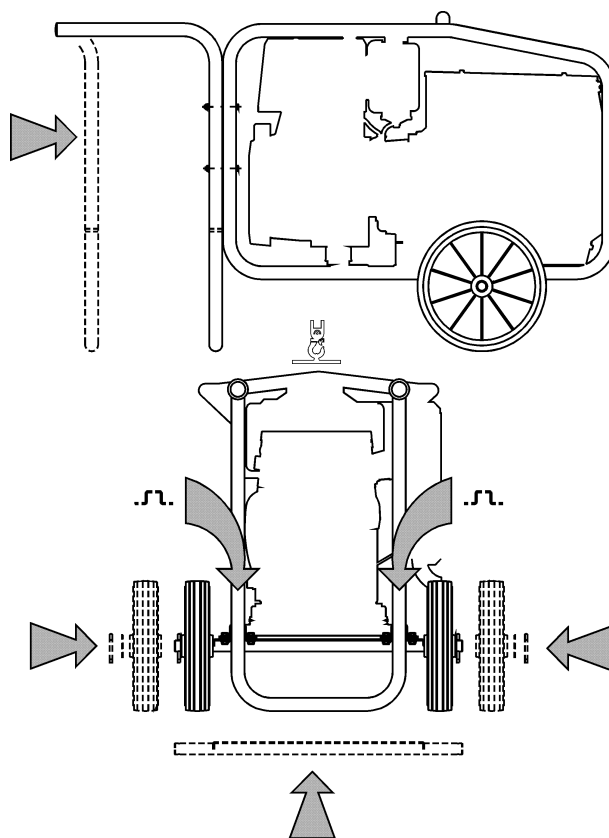
Note: For assembling the generating set on the trolley please keep to following instructions:

1) - Lift the generating set (by means of suitable hook).

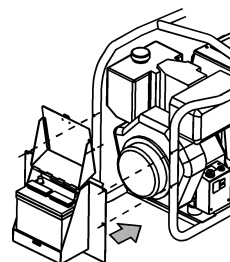
KHM 190 HS



KHM 190 YS



PB 3



⚠ ATTENTION

Do not substitute the original tires with other types



ATTENTION

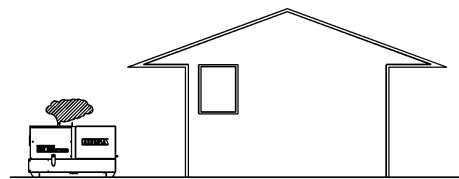
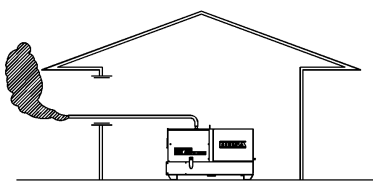
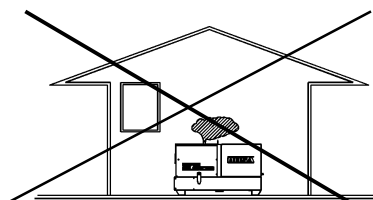
The accessory cannot be removed from the machine and used separately (actioned manually) for the transport of loads or anyway for used different from the machine movements.



INSTALLATION INFORMATION

GASOLINE ENGINES

- Use in open space with fresh air flow or vent exhaust gases, which contain the deadly carbon-monoxide, away from the work area.



Assure that the hot air and/or exhaust gas from the machine are vented and are not recirculated in the machine. Hot air and/or exhaust gas which is recirculated will cause overheating of the machine and poor combustion in the engine.

Make sure that the machine does not move during operation.



Protect the machine from rain and do not put it in a location where there is danger of flooding.

Water infiltration can cause short circuits, which can be dangerous for persons and can damage the machine.

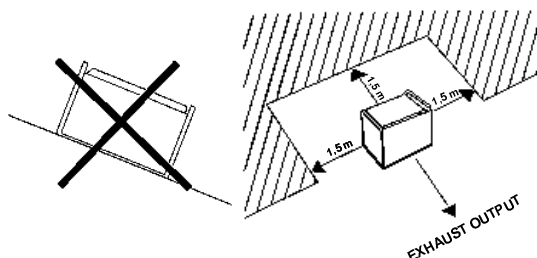
The degree of protection, of the machine is written the rating plate and in this manual at the "Technical Data" page.

MOVING THE MACHINE

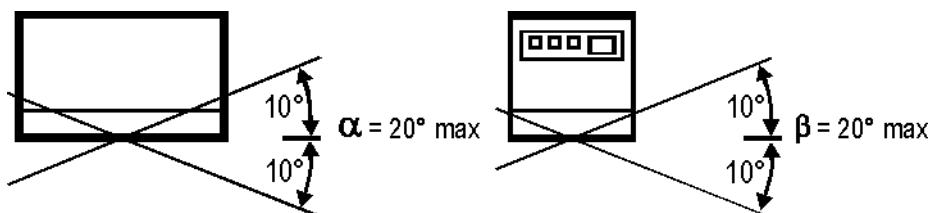
Before moving the machine turn off the engine and disconnect all cables, which could impede the move.

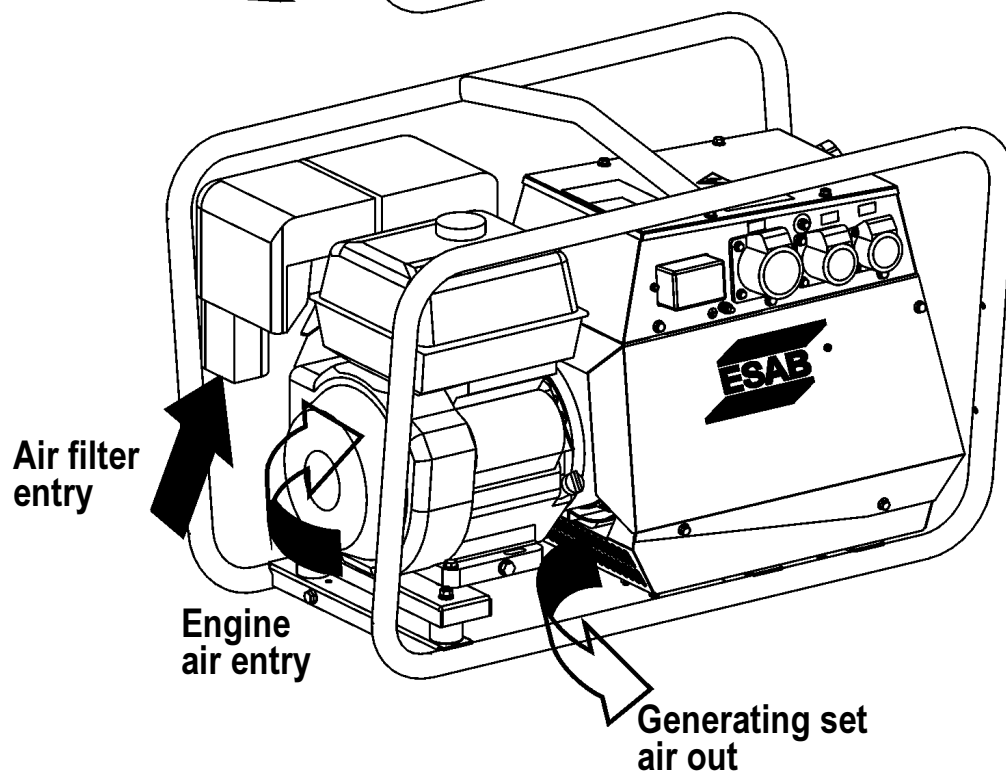
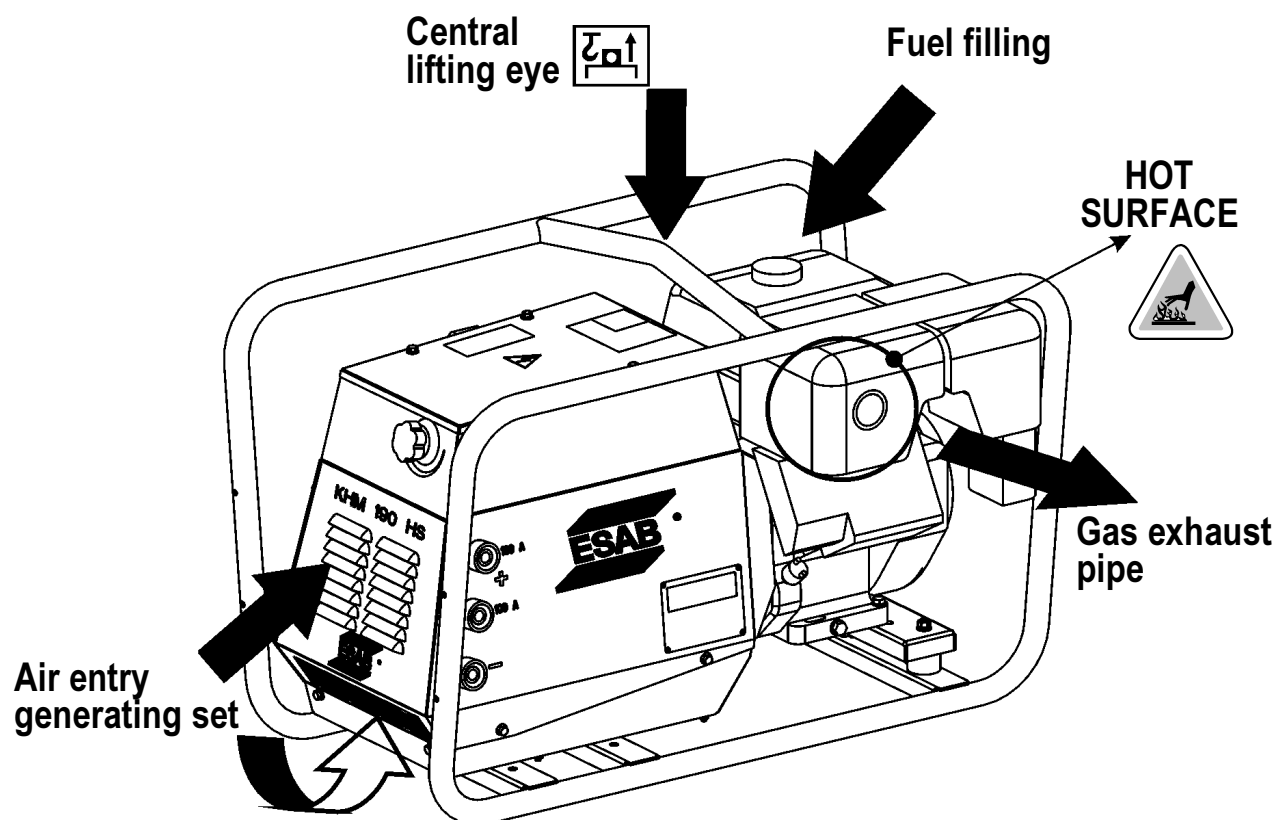
POSITIONING THE MACHINE

Place the machine on a level surface at a distance of at least 1,5 m from buildings or other structures.

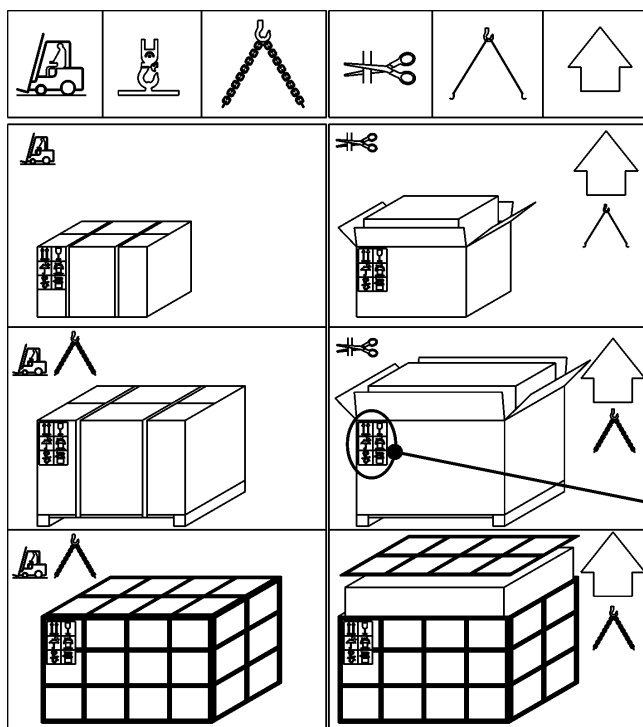


If the surface is not level be sure that the angle of the machine does not exceed the values shown in the drawings below.





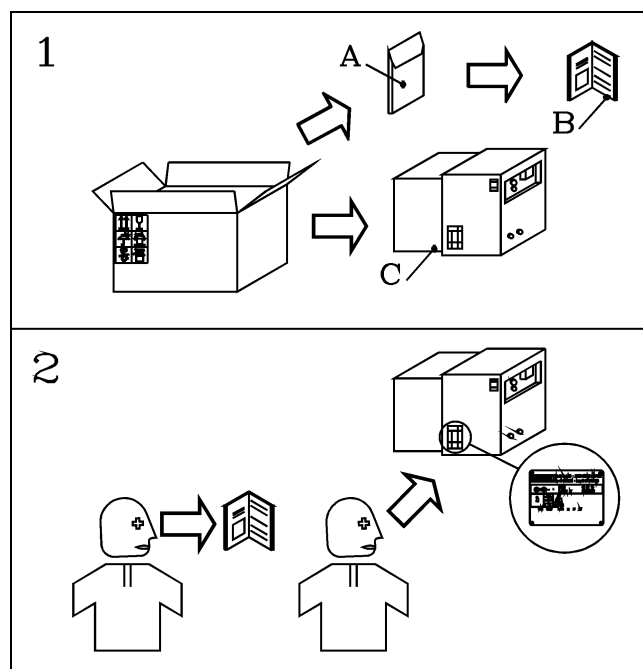
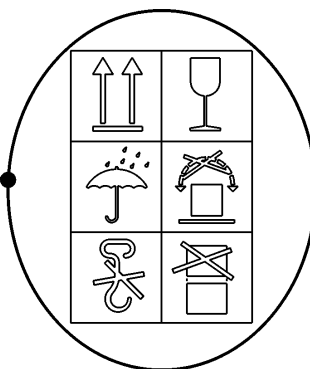
⚠ GENERAL PACKING INFORMATION



Upon receipt of the goods make sure that the product has not been damaged during transport. In case of damage or missing items you must inform your freight forwarder immediately.



Packing materials must be disposed of according to local regulations.



UNPACKING THE MACHINE

- 1) Take the machine (C) out of the carton. Locate the User's Manual (B), which is packed together with the engine manual and accessories in a plastic envelope (A). This envelope may be under or inside the machine.
- 2) Check the rating plate on the machine and confirm that the serial number and model are the same as shown on the packing note/invoice.

NB.: For further information on preparing the unit for use refer to the related parts of this manual.





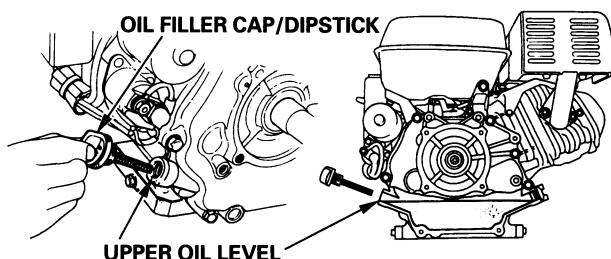
LUBRICANT

The engine is shipped without oil. Use a 4-stroke, high detergent, premium quality motor oil certified to meet or exceed U.S. automobile manufacturer's requirements for service classification SG, SF. Motor oils classified SG, SF will show this designation on the container. Refer to the engine manual for recommended viscosities.

SAE 10W-30 is recommended for general, all temperature use. If single viscosity oil is used, select the appropriate viscosity for the average temperature in your area.

To check the oil level:

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.



ENGINE WITH OIL ALERT DEVICE

The Oil Alert System is designed to prevent engine damage caused by an insufficient amount of oil in the crankcase. Before the oil level in the crankcase can fall below a safe limit, the Oil Alert System will automatically stop the engine (the engine switch will remain in the ON position).

If the engine stops and will not restart, check the engine oil level.



AIR FILTER

Check that the dry air filter is correctly installed and that there is no air leakage around the filter which could let unfiltered air into the engine.



FUEL

Fill the tank with automotive gasoline (unleaded or lowlead is preferred to minimize combustion chamber deposits).



GROUND CONNECTION

A good ground is obligatory for all models with GFI (ground fault interrupter). This protective device will not protect the operator unless there is a good ground.



Use a good quality ground cable and connect it to the grounding point of the machine. Follow all local rules and/or regulations.

Once the above operations have been completed, the machine can be used.



WARNING

Gasoline is highly flammable. Refuel in well ventilated area with the engine stopped. Do not fuel in the presence of open flames. Be careful not to spill fuel. Spilled fuel or vapor may ignite. If any fuel is spilled be sure the area is dry before starting the engine.





Check daily

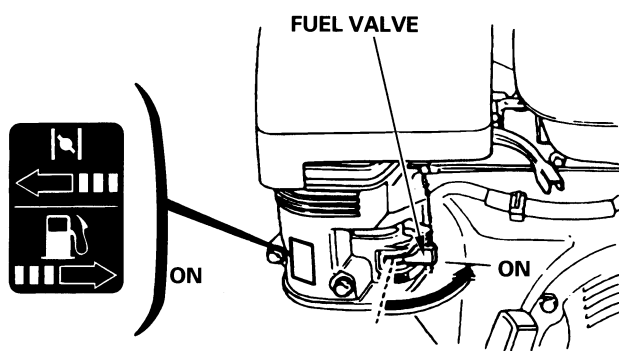


NOTE

Do not alter the factory adjustment of the engine and do not touch any sealed parts.

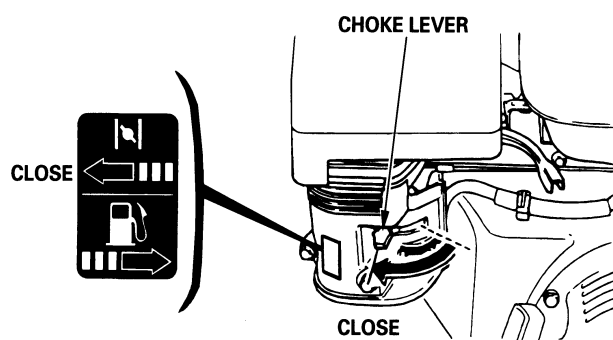
ALL

1. Turn the fuel valve to the ON position.

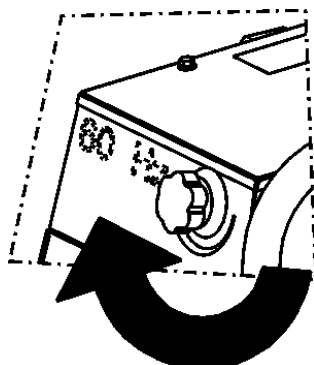


2. Move the choke lever to the CLOSE position.

NOTE: Do not use the choke if the engine is warm or the air temperature is high.



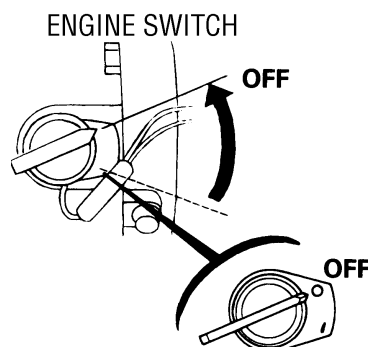
3. The regulation is made by means of the knob for welding current control placed on the front panel.



4. Start the engine:

• RECOIL START

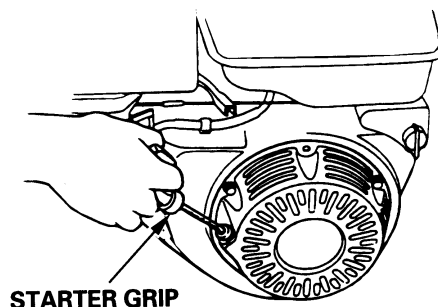
Turn the engine switch to the ON position.



Pull the starter grip lightly until resistance is felt, then pull briskly.

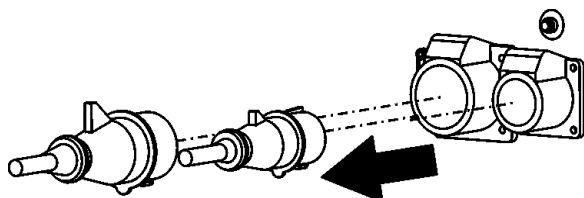
⚠ WARNING:

Do not allow the starter grip to snap back against the engine. Return it gently to prevent damage to the starter.

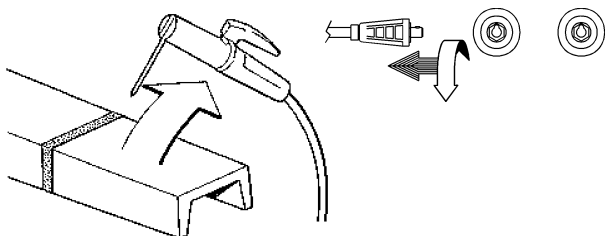


Before stopping the engine **it is compulsory** to:

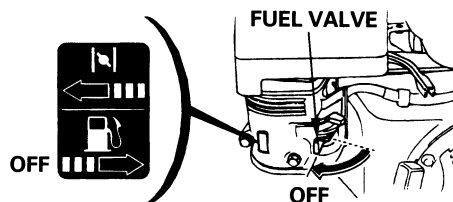
- disconnect or shut off any loads connected to the unit's auxiliary output.



- stop welding.



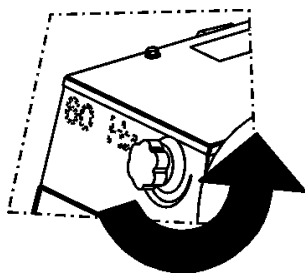
3. Turn the fuel valve to the OFF position.



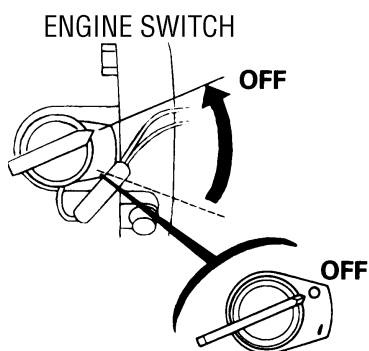
To stop the engine:

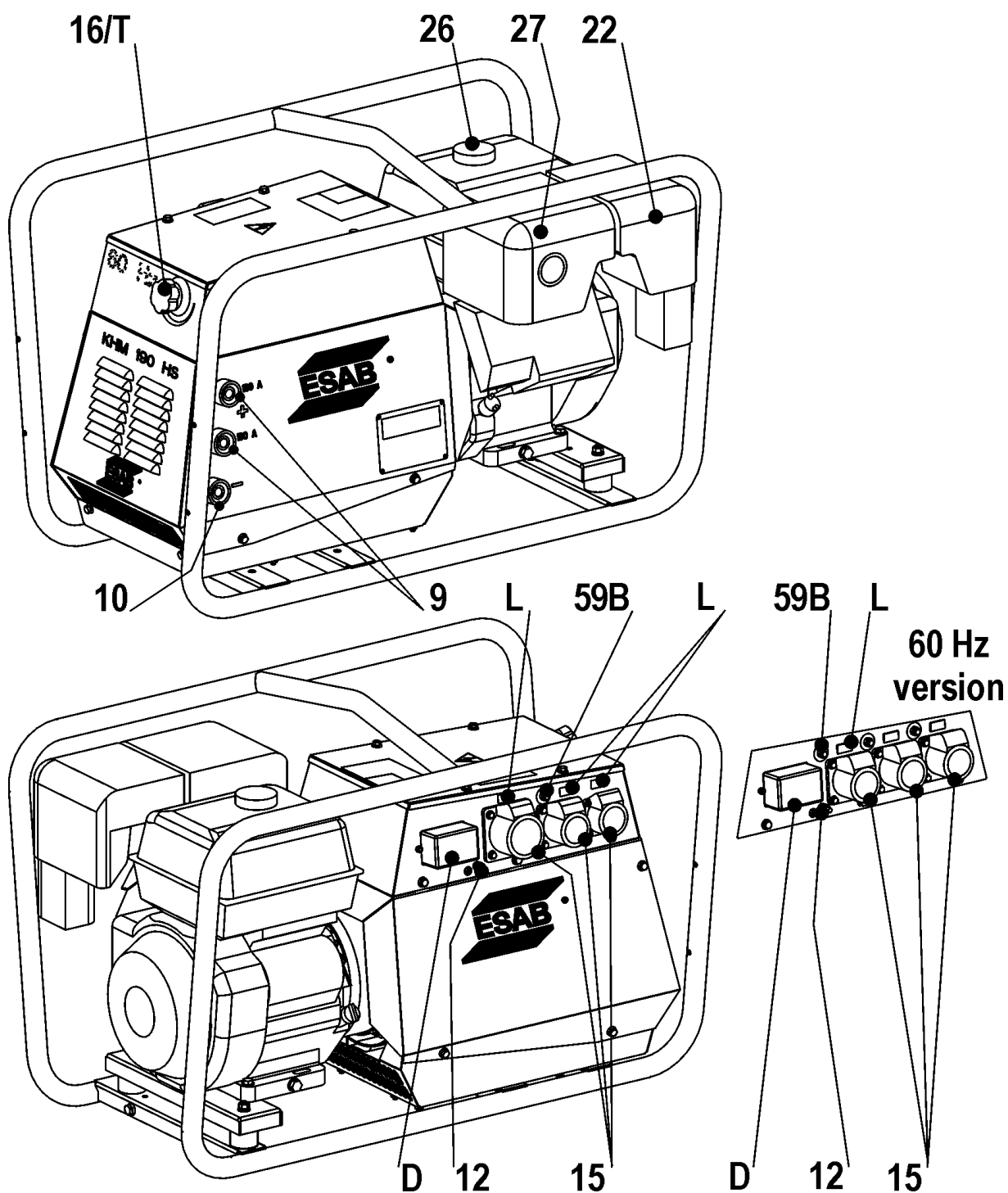
To stop the engine in an emergency, turn the engine switch to the OFF position. Under normal conditions, use the following procedure:

1. Turn the welding current regulator knob in anti-clockwise direction.



2. Turn the engine switch to the OFF position.





DESCRIPTION	9	Welding socket (+)	27	Muffler
	10	Welding socket (-)	59B	Aux current circuit breaker
	12	Earth terminal	D	Ground fault interrupter (30 mA)
	15	A.C. socket	L	A.C. output indicator
	16	Accelerator levelr	T	Welding current regulator
	22	Engine air filter		
	26	Fuel tank cap		



ATTENTION

When the machine is running the auxiliary power sockets and the welding sockets are live.

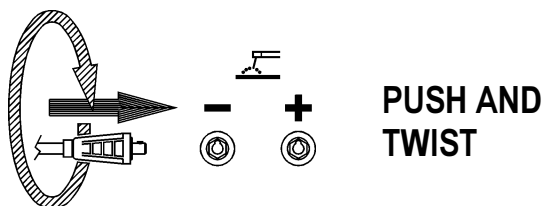


ATTENTION

Be sure that the machine is grounded before using it. Without a ground the GFI (ground fault interrupter) will not function.

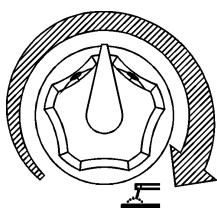
CONNECT WELDING CABLES

For direct current electrode positive, connect work cable to negative (-) terminal and electrode holder to positive (+) terminal. For direct current electrode negative, reverse cable connections. Turn them clockwise to lock them in position. Loose plugs will result in poor welding and damage to both plug and socket.



☞ Make sure that the ground clamp makes a good connection and is near the welding position.

WELDING CURRENT REGULATION



Once the welding current range has been chosen by attaching the electrode holder lead to the corresponding socket, the welding current is adjusted by turning the knob on the front panel. The knob regulates the rpm of the engine.



ATTENTION

To reduce the risk of electromagnetic interference, keep the welding cable length short and keep them on or near the ground. Ensure that the machine is grounded. If possible, welding operations should not be done near sensitive electronic devices.



WARNING

When the machine is running the auxiliary power sockets and the welding sockets are live.



CAUTION

The auxiliary output should never be connected to the mains or to any other source of electric power

ENGINE SPEED FOR CORRECT VOLTAGE AND FREQUENCY


Turn the welding current regulating knob fully clockwise to put the engine at its maximum rpm. If the engine is not at full rpm the voltage and the frequency of the auxiliary power will not be correct. At no load the voltage can be 10% above nominal and at full load the voltage can be 10% below nominal.

PLUGS AND CABLES

Before connecting a load to the socket check that the cables are in good condition and that the plug is wired correctly.

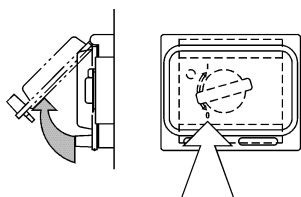
POWER ON LIGHT

The light (L), located above each socket, lights up when there is power available from the socket.

 If the warning light does not light, check that the engine is at maximum rpm, that the GFI (ground fault interrupter) is inserted and that the circuit breaker is functioning.

When drawing power from more than one socket at the same time, the power available is that indicated for each socket but the total cannot exceed the maximum shown on the rating plate.

GROUND FAULT INTERRUPTER CIRCUIT BREAKER - GFI (also called EARTH LEAKAGE CIRCUIT BREAKER - ELCB)



Turn on the GFI (ground fault interrupter) (D) by pushing the lever upwards.

The GFI (ground fault interrupter) is a safety device, which protects the operator in the event of a malfunction. The GFI (ground fault interrupter) shuts off the power to the three

and single-phase sockets there is a leakage current of more than 30mA.



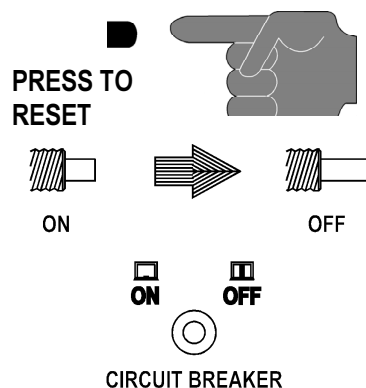
WARNING

Be sure that the machine is grounded before using it. Without a ground the GFI (ground fault interrupter) will not function.

CIRCUIT BREAKERS FOR SOCKETS

If you overload the socket the circuit breaker will automatically switch off the power.

To reset the circuit breaker, disconnect the load, wait a few seconds for the circuit breaker to cool down and then push the button. The button should stay depressed. If the circuit breaker button does not stay in, let it cool down and try again. If it still will not stay in call the service.



Before reconnecting the load check that the power required is within the rating of the socket. A load which is too large for the socket will cause the circuit breaker to intervene. If, after reconnecting the load, the circuit breaker opens again, check the connections, wires, etc. of the load to find the fault.





WARNING



**MOVING
PARTS
can injure**

- Maintenance and repair work should only be done by **qualified** personnel.
- Stop the engine before doing any work on the machine. If for any reason the machine must be operated while working on it, **be careful not to touch** rotating parts, hot surfaces, live wires, etc. which may be unprotected.
- Remove protective guards only when necessary to perform maintenance and replace them immediately after the maintenance is completed.
- Use suitable tools and wear suitable clothes.
- Do not modify the machine without prior authorization.



**HOT surface
can
hurt you**

MAINTENANCE OF THE MACHINE

Maintenance refers to all operations regarding the control and replacement of mechanical and electrical parts subject to wear. In addition it refers to the control and topping up or replacement of fluids such as fuel, oil and the regular cleaning of the machine.

Repairs refers to the substitution of worn or damaged parts and repairs should be carried out by Authorized Service Centers.

Refer to the Engine Manufacturer's Manual for the maintenance instructions for the engine. Periodic maintenance should be performed according to the schedule shown in this manual.

On a regular basis check that there are no obstructions in the aspiration/exhaust ducts of the alternator, the engine or the housing which could restrict the flow of cooling air.

DRY AIR FILTER

Replace the air filter cartridge every 200 hours under normal conditions and every 100 hours in dusty environments.

ASYNCHRONOUS ALTERNATOR

No maintenance is necessary, as the alternator has no brushes or slip rings, and there are no devices for regulation of the output.

WARNING LABELS AND DECALS

Check warning labels and decals once a year and **replaced** if missing or unreadable.

CABLES AND CONNECTIONS

Periodically check the condition of the cables and tighten the connections.



IMPORTANT



When carrying out maintenance operations be careful to avoid polluting the environment with the materials used during maintenance. Follow all local health and safety regulations.



In case the machine will not be used for more than 30 days, it should be stored in a suitable area where it is protected from the elements to prevent rusting, corrosion and other damage to the machine.

GASOLINE ENGINES

Run the engine until it stops from lack of fuel.

For long periods of storage, refer to the engine manufacturer's manual.

Clean the machine carefully.

Cover the machine with a plastic cover and store in a dry place.



IMPORTANT

When carrying out the operations to prepare the machine for storage, be careful to avoid polluting the environment with the materials used during maintenance. Follow all local health and safety regulations.



The KHM 190 HS is an engine driven welder and is both:

- a) a current source for arc welding b) a generator of electrical current

The machine, which is powered by an internal combustion engine, is meant for industrial and professional use.

The engine is directly coupled to a three/single phase alternator. The complete assembly is mounted inside a protective frame with lifting point using antivibration mounts.

D.C. WELDING	DC welding current/voltage at duty cycle		190A/20V at 35% 160A/26.5V at 60% 120A/25V at 100%				
	Welding current regulation (I scale) (II scale)	A	20 – 100 90 - 190				
	Open circuit voltage	V	98				
	Welding voltage	V	20 - 27				
	Electrode diameter (I scale) (II scale)	mm	2 - 3.25 2 - 4				
A.C. GENERATOR	3/1-phase, asynchronous, self-excited, self-regulated, brushless						
	Insulation	class	H				
	OUTPUT		T 400V	M 230V			M 48V
	Duty cycle	%	100	100			100
	Power	KVA	6	5			2
	Voltage	V	400	230			48
	Current	A	8.7	21.7			41.6
	Frequency	Hz	50	50			50
	Cos.	Ø	0.8	0.8			0.8
ENGINE	Make / Model		HONDA / GX 390 VXB				
	Type / Displacement / Cylinder	- / cc / no.	4 - stroke / 337 / 1				
	Power (**)	kW (CV)	8.4 (11.4)				
	Operating speed	rpm	3000				
	Cooling system		air				
	Engine oil capacity	liter	1.1				
	Starter		recoil				
	Fuel		gasoline				
GENERAL SPECIFICATION	Protection	IP	23				
	Weight (*)	kg	115				
	Dimensions Lxwxh (*)	mm	910x525x612				
	Fuel tank capacity	liter	6.5				

Note : T =three-phase M =single-phase (*) =Above values are without wheels and handles
(**)= Maximum output according to ISO 3046/1

OUTPUT - ACOUSTIC POWER LEVEL

☞ The output indicated is guaranteed at 20°C and at a pressure of 1 bar (up to 1000 m no correction for atmosphere pressure is required). At high temperature and above 1000 m altitude the engine output will decrease and the engine may need adjustment for optional performances.

☞ **N.B.:** at high altitudes, the standard mix air-fuel is excessively rich, the efficiency of the engine is reduced and, therefore, the fuel consumption will increase.

☞ Max. acoustic power level admitted according to the EEC norms of 17/09/84 n. 84/535-536.

The machine respects the noise limits, expressed in sound power, given in the a.m. directives.

These limits can be used to judge the sound level produced on site.

For example: the sound power level of 100 LWA.

The sound pressure (noise produced) at 7 meters distance is about 75dBA (the limit value less 25).

To calculate the sound level at other distances use this formula:

$$dBA_x = dBA_y + 10 \log \frac{r_y^2}{r_x^2} \quad \text{At 4 meters the noise level becomes: } 75 \text{ dBA} + 10 \log \frac{7^2}{4^2} = 80 \text{ dBA}$$

The KHM 190 HS is an engine driven welder and is both:

- a) a current source for arc welding b) a generator of electrical current

The machine, which is powered by an internal combustion engine, is meant for industrial and professional use.

The engine is directly coupled to a three/single phase alternator. The complete assembly is mounted inside a protective frame with lifting point using antivibration mounts.

D.C. WELDING	DC welding current/voltage at duty cycle		190A/20V at 35% 160A/26.5V at 60% 120A/25V at 100%				
	Welding current regulation (I scale) (II scale)	A	20 – 100 90 - 190				
	Open circuit voltage	V	98				
	Welding voltage	V	20 - 27				
	Electrode diameter (I scale) (II scale)	mm	2 - 3.25 2 - 4				
A.C. GENERATOR	3/1-phase, asynchronous, self-excited, self-regulated, brushless						
	Insulation	class	H				
	OUTPUT		T 220V		M 220V	M 120V	
	Duty cycle	%	100		100	100	
	Power	KVA	6		5	5	
	Voltage	V	220		220	120	
	Current	A	15.7		22.7	41.7	
	Frequency	Hz	60		60	60	
	Cos.	Ø	0.8		0.8	0.8	
ENGINE	Make / Model		HONDA / GX 390 VXB				
	Type / Displacement / Cylinder	- / cc / no.	4 - stroke / 337 / 1				
	Power (**)	kW (CV)	9.6 (13)				
	Operating speed	rpm	3600				
	Cooling system		air				
	Engine oil capacity	liter	1.1				
	Starter		recoil				
	Fuel		gasoline				
GENERAL SPECIFICATION	Protection	IP	23				
	Weight (*)	kg	115				
	Dimensions Lxwxh (*)	mm	910x525x612				
	Fuel tank capacity	liter	6.5				

Note : T =three-phase M =single-phase (*) =Above values are without wheels and handles
(**)= Maximum output according to ISO 3046/1

OUTPUT - ACOUSTIC POWER LEVEL

☞ The output indicated is guaranteed at 20°C and at a pressure of 1 bar (up to 1000 m no correction for atmosphere pressure is required). At high temperature and above 1000 m altitude the engine output will decrease and the engine may need adjustment for optional performances.

☞ **N.B.:** at high altitudes, the standard mix air-fuel is excessively rich, the efficiency of the engine is reduced and, therefore, the fuel consumption will increase.

☞ Max. acoustic power level admitted according to the EEC norms of 17/09/84 n. 84/535-536.

The machine respects the noise limits, expressed in sound power, given in the a.m. directives.

These limits can be used to judge the sound level produced on site.

For example: the sound power level of 100 LWA.

The sound pressure (noise produced) at 7 meters distance is about 75dBA (the limit value less 25).

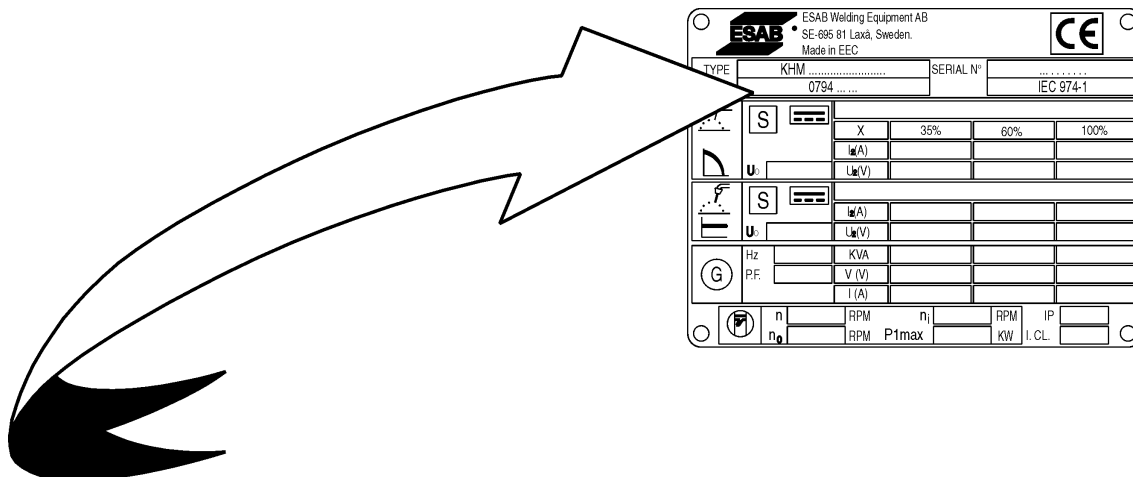
To calculate the sound level at other distances use this formula:

$$dBA_x = dBA_y + 10 \log \frac{ry^2}{rx^2} \quad \text{At 4 meters the noise level becomes: } 75 \text{ dBA} + 10 \log \frac{7^2}{4^2} = 80 \text{ dBA}$$

Spare parts are ordered through your nearest ESAB representative, see back cover.

When ordering spare parts, please state machine type and number as well as designation and spare part number, according to the spare parts list.

This will simplify dispatch and ensure you get the right part.



When ordering the spare parts, it is recommended to indicate:

- 1) * serial number
- 2) * model of welder and/or generating set
- 3) ◆ part number
- 5) quantity



* The requested data are to be found on the rating plate of the machine.