

HDS 601 C



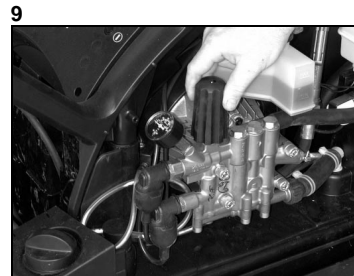
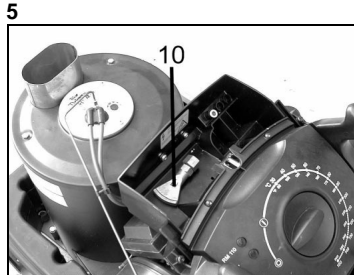
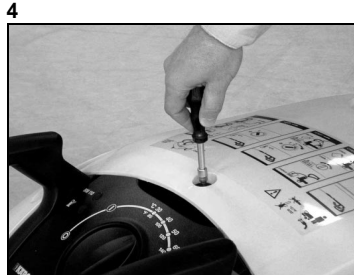
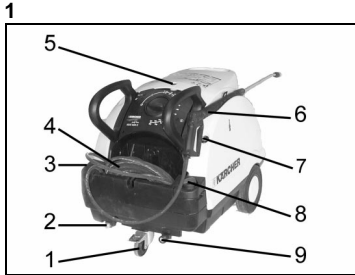
Operating Instructions

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Spare Parts List

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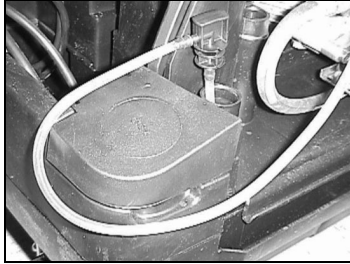


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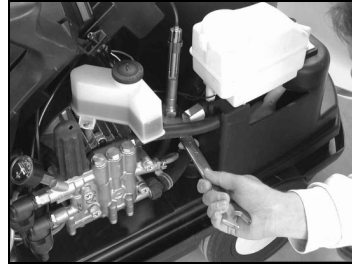
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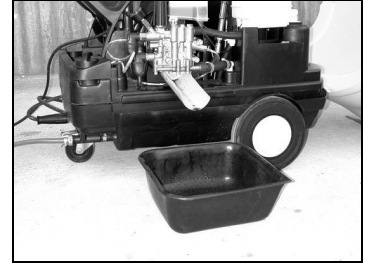
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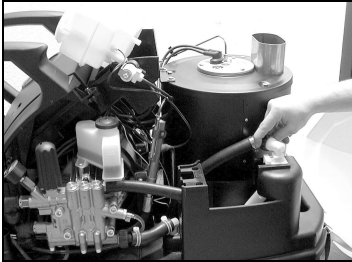
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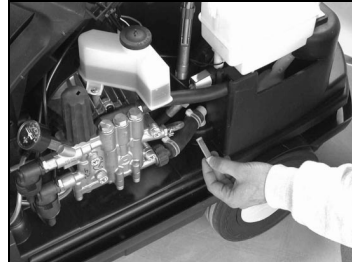
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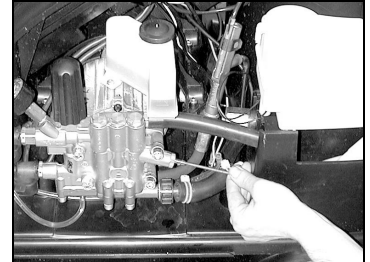
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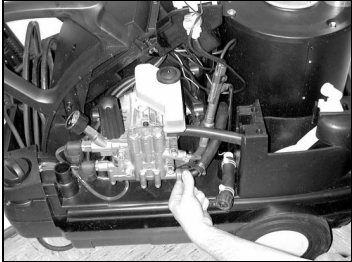
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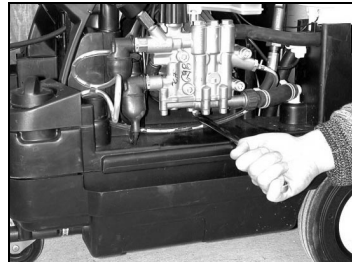
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					Items used when working, such as fuel, oil, cleaning agent and contaminated maintenance materials, are to be deposited at a special collection point.
					ENVIRONMENTAL PROTECTION

COMMISSIONING



- Unit, piping, high-pressure hose and connections must be in perfect working order!
- Lock the hand brake.

Checking oil level

Fig. 13



Prior to initial startup, cut off tip of oil reservoir cap

Contact KÄRCHER AFTER-SALES SERVICE immediately if oil is opaque!

If oil level is approaching MIN mark, fill up with oil as far as MAX mark.

Seal oil filler inlet.

Refer to technical data for oil grade.

Filling with scale inhibitor

Fig. 6

(sample pack included with scope of delivery)

Scale inhibitor stops heating coil becoming calcified when using hard tap water. Is metered in at the inlet in the water reservoir one drop at a time.

The metering is set at the factory to medium-hard water.

For other water hardness classes, call in KÄRCHER AFTER-SALES SERVICE to perform adjustment to local conditions.

Filling with fuel



- Never operate unit with fuel tank empty! Fuel pump would otherwise be destroyed!

Fig. 7

Only fill with diesel fuel or light fuel oil.

Close tank cap

Wipe off excess fuel

Filling with cleaning agent



- * Only use KÄRCHER products.
- * Never pour in solvent (petrol, acetone, thinner etc.)!
- * Avoid contact with eyes and skin
- * Pay attention to cleaning-agent manufacturer's instructions on safety and handling

KÄRCHER can provide an individual range of cleaning and treatment agents.

Your dealer will be pleased to advise you.

Fig. 10

Fill with cleaning agent

Mounting handgun

- Connect spray lance to handgun
- Insert high-pressure nozzle in union nut
- Mount and tighten unit nut
- Mount high-pressure hose at high-pressure connection Fig. 1 Item 2

Water connection

For connected loads, refer to Technical Data.

Mount supply hose at water connection of unit.

Fig. 1 Item 9

(supply hose is not part of scope of delivery)

Drawing in water from tank

The following conversion work is necessary if water is to be drawn in from an external tank.

Fig. 14

Lift off scale inhibitor reservoir.

Remove upper supply hose to water reservoir and route to pump head.

Fig. 15

Detach water connection at pump head and swivel aside.

Connect supply hose to pump head.

For drawing in, use 3/4 hose with suction filter.

Max. suction height 0,5 m.

Mains connection

Refer to technical data and rating plate for connected loads.

Set selector switch to "0"
Insert power plug

If an extension cable is used, this should always be fully uncoiled and have an adequate cross-section.

OPERATION

* Never operate unit with fuel tank empty! Fuel pump would otherwise be destroyed!

Switching on unit**Fig. 3**

Set selector switch (1) to "I"
Indicator lamp (4) lights

* If indicator lamp (2) or (3) comes on during operation, switch off unit immediately. Eliminate fault, refer to Faults.

Unit starts up briefly and is switched off as soon as operating pressure is reached.

Illustration 8, Illustration 12

Release handgun
Actuation of handgun switches unit back on again.

Bleed pump if no water emerges from high-pressure nozzle. Refer to Faults "No build-up of pressure by unit"

Setting cleaning temperature

Set selector switch (1) to desired temperature

30°C to 90°C
Hot water cleaning

100°C to 150°C
Steam cleaning
(with steam nozzle 4.766-023)

Setting operating pressure and flow rate**Fig. 9**

Turning regulator clockwise:
Increases operating pressure (MAX)
Turning counter-clockwise: Reduces operating pressure (MIN)

Servopress control

(not HDS 601 C, 1.170-111)
Set selector switch (1) to max. 98°C.
Set regulator to maximum operating pressure.

Fig. 12

Operating pressure and flow rate can be set at handgun.
Set pressure on unit if use is to be made of reduced pressure for a lengthy period. See Fig. 9

Measuring out the cleaning agent

* Use cleaning agents sparingly to protect the environment
* The cleaning agent must be suitable for the surface to be cleaned.

Fig. 11

Set cleaning-agent concentration as specified by manufacturer
0 = Working without cleaning agent

Metering setting	Concentration
1	0,25%
2	1,00%
3	1,25%
4	1,50%
5	1,75%
6	2,00%

Approximate values at maximum operating pressure

Fig. 16

Take out cleaning-agent inlet

Fig. 17

Turning strainer allows coarse metering of cleaning agent.

Intended use

Cleaning of: Machines, vehicles, buildings, tools, facades, terraces, garden tools, etc..



* Engine cleaning is only to be performed in areas provided with oil separator.
* Heed appropriate safety regulations for use at petrol stations or in other hazardous environments.

Working with high-pressure nozzle

Spray angle is crucial to efficiency of high-pressure jet.
Use is normally made of 25°fan jet nozzle (included).

Recommended nozzles, available as accessories

- For stubborn dirt 0°full jet nozzle
- For delicate surfaces and slight contamination 40°fan jet nozzle
- For thick layers of stubborn dirt dirt blaster
- Nozzle with variable spray angle, for adaptation to various cleaning tasks variable-angle nozzle

Cleaning

- * Set pressure/temperature and cleaning-agent concentration in line with surface to be cleaned
- * Always start by directing high-pressure jet from a good distance at object to be cleaned to avoid damage caused by excessive pressure.

Recommended cleaning method

Loosen up dirt:

Spray on cleaning agent sparingly and allow to react for 1...5 min (do not allow to dry on).

Remove dirt:

Spray off loosened-up dirt with high-pressure jet.

Operation with cold water

Removal of slight contamination and rinsing
e.g.: Garden implements, terrace, tools, etc.

Set operating pressure as required
Set selector switch to "I"

Operation with hot water

- * Danger of scalding

We recommend the following cleaning temperatures

- Slight contamination 30-50°C
- Protein soiling, e.g. in foodstuffs industry max. 60°C
- Motor vehicle cleaning, machine cleaning 60-90°C

Set selector switch to desired temperature

Operation with steam



At operating temperatures above 98°C operating pressure must not exceed 32 bar.

Standard high-pressure nozzle is therefore to be replaced with steam nozzle (part no.: 4.766-023, see accessories).

- Set operating pressure to minimum value. See Fig. 9
- Set temperature regulator to min. 100°C

- * Danger of scalding!

We recommend the following cleaning temperatures

- Preservative removal, extremely greasy dirt 100-110°C
- Thawing of aggregates, certain facade cleaning operations up to 140°C

EACH TIME AFTER USAGE

Following operation with cleaning agent

- Set cleaning-agent regulator to "0"
- Set mode selector switch to "I"
- Actuate handgun and flush unit for approx. 1 min

Stopping machine

- Set mode selector switch to "0"
- Shut off water supply
- Briefly (approx. 5 sec.) switch on pump with selector switch
- Remove mains plug from socket **ONLY** with dry hands
- Detach water connection
- Actuate handgun to depressurise unit
- Securing spray pistol
Illustration 8, Illustration 12
- Engage spray lance in cover holder
- Roll up high-pressure hose and cable and place in compartment

- * Take care not to kink high-pressure hose and cable!



Frost will destroy unit if water is not drained off completely!

Store unit in a frost-free location

Take unit out of service if frost-free storage is not possible.

DISCONTINUATION OF USAGE

In the event of lengthy periods of non-use or if frost-free storage is not possible:

- Drain off water and flush out equipment with antifreeze
- Drain cleaning fluid tank

Drain off water

- Unscrew water supply hose and high-pressure hose
- Unscrew supply line at boiler base and allow heating coil to drain
- Run unit for max. 1 min until pump and lines are empty

Flushing unit with anti-freeze

- Use commercial grade antifreeze
- Observe handling instructions of antifreeze manufacturer
- By this means, a certain degree of corrosion protection is achieved

MAINTENANCE

* Disconnect unit from mains before carrying out any maintenance or repair work.

* Always use genuine spare parts

Shut off unit before performing any work, refer to AFTER USE.

Set mode selector switch to "0"

Pull power plug out of socket

Shut off water supply

Actuate handgun to depressurise unit.

Detach water connection

Allow unit to cool down

Please consult your KÄRCHER dealer for details of regular safety inspection/maintenance agreement

Maintenance intervals**Once a week**

- Clean strainer in water connection
- Check oil level

Contact KÄRCHER AFTER-SALES SERVICE immediately if oil is opaque!

Once a month

- Clean strainer in low water protection
- Clean filter at cleaning-agent suction hose

After 500 hours of operation, at least once a year

- Change oil

MAINTENANCE TASKS**Cleaning strainer in water connection****Fig. 18**

- Remove strainer
- Clean in water and re-insert

Cleaning strainer in low water protection**Fig. 19**

- Unfasten union nut and detach hose

Fig. 20

- Take out strainer
- If necessary, screw in bolt M8 approx. 5mm to pull out strainer.
- Clean strainer in water
- Slide in strainer
- Mount hose
- Tighten union nut

Cleaning filter at cleaning-agent suction hose**Fig. 17**

- Pull out cleaning-agent suction hose
- Clean filter in water and re-insert

Changing oil**Fig. 21**

- Provide a collecting container for approx. 1 litres of oil
- Place drainage spout in position
- Loosen starting screw

Fig. 22

KÄRCHER tip

- * Cut open RM 110 bottle and use as drainage spout
- Drain off oil via drainage spout into collector

* Dispose of used oil in appropriate manner or hand in at a collection point.

- Tighten drain plug again
 - Slowly fill with oil as far as MAX mark
- Air bubbles must be able to escape
Refer to technical data for oil grade and quantity to be used.

FAULTS

FUEL indicator lamp on

Fuel tank empty

- Fill up

READY FOR OPERATION indicator lamp off

Motor overloaded/overheated

- Set selector switch to "0" and allow motor to cool down for at least 5 min.
- Have unit checked by After-Sales Service if this does not remedy fault.

SCALE INHIBITOR indicator lamp on

Scale inhibitor reservoir empty; for technical reasons there is always a residual quantity in the reservoir.

- Fill up

Dirt on electrodes in reservoir

- Clean electrodes

Unit does not run

No mains voltage

- Check mains connection/power cord

Unit does not build up pressure

Air in system

- Bleed pump:
- * Set cleaning-agent metering to "0"
- * With handgun open, use selector switch to switch unit on and off several times.

- * With handgun open, open and close regulator (Fig. 9).
- Venting is accelerated by removing the high-pressure hose from the high-pressure connection.
- Fill up cleaning-agent tank if empty.
- Check connections and lines

Pressure set to MIN

- Set pressure to MAX

Strainer in water connection dirty

- Clean strainer

Insufficient water supply

- Check water supply volume (refer to technical data)

Unit leaking, water dripping out at bottom

Pump leaking

- 3 droplets/min are permitted.
- In the event of a major leak, have unit checked by After-Sales Service.

Unit constantly switched on and off with handgun closed

Leak in high-pressure system

- Check high-pressure system and connections for leaks

Unit does not draw in cleaning agent

Operate the unit when the cleaning agent metering valve is open and the water inlet is shut off until the

float tank has been suctioned empty and the pressure drops to "0".

- Now reopen the water inlet.

If the pump still does not suction up cleaning agent the reasons can be as follows:

Filter in cleaning-agent suction hose dirty

- Clean filter

Non-return valve gummed up

- Pull the cleaning agent hose off and detach the non-return valve with a blunt object, see Figure 23.

Burner not ignited

Fuel tank empty

- Fill up

Lack of water

- Check water connection, check supply lines, clean low water protection.

Fuel filter dirty

- Replace fuel filter.

Incorrect direction of rotation. If

direction of rotation is correct, powerful jet of air will be felt at exhaust-gas opening of burner.

- Check direction of rotation. If necessary, have connection replaced by a qualified electrician.

No ignition spark

- Have unit checked by After-Sales Service if no ignition spark is

visible through inspection glass during operation.

Set temperature not attained when working with hot water

Excessive operating pressure/flow rate

- Reduce operating pressure/flow rate by way of regulator (Fig. 9)

Soot deposits on heating coil

- Have After-Sales Service remove soot deposits from unit

If the problem cannot be resolved the unit must be checked by after sales service.

WARRANTY

The warranty terms and conditions issued by our responsible sales company apply in every country. Within the warranty period, any faults in the unit will be rectified free of charge provided that the problem was caused by a material defect or manufacturing error.

The warranty only applies if the dealer fills in, stamps and signs the enclosed reply card when the unit is sold and the purchaser then returns it to the appropriate local distributor.

In the event of a warranty claim, please contact your dealer or the nearest authorised After-Sales Service office and produce both accessories and proof of purchase.

GENERAL INSTRUCTIONS**Safety features**

- * Overflow valve with two pressure switches

When reducing water volume at pump head or with the servopress control, the overflow valve will open and part of the water will flow back to the pump suction side.

If the handgun is closed thus causing all the water to return to the pump suction end, the pressure switch at the overflow valve shuts off the pump.

Reopening the handgun causes the pressure switch at the cylinder head to switch the pump back on again. The overflow valve is set at the factory and lead-sealed. Adjustment can only be made by After-Sales Service.

- * Safety valve

The safety valve opens if the overflow valve or pressure switch is defective. The safety valve is set at the factory and sealed. Adjustment can only be made by After-Sales Service.

- * Low water protection

The low water protection stops the burner being switched on in the event of a lack of water. A strainer stops the protection feature becoming dirty and requires regular cleaning.

- * Motor protection switch
The motor protection switch interrupts the circuit should overloading occur.

Guidelines for liquid spraying equipment

- * The accident prevention instructions (VBG 87) Working with Jet Stream Equipment will apply. In accordance with these guidelines, high-pressure spraying equipment must be checked at least every 12 months by an expert and the results of the inspection recorded in writing.

Order governing boilers

- * Test pressure and design of unit comply with Order governing boilers as per TRD. The water content of the heating coil is less than 10 litres. The boiler section of the unit is thus not subject to installation regulations. Local building regulations are to be heeded.

TECHNICAL DATA

Mains connection 240 V
1~50 Hz
Connected power 3,0 kW
Fuse protection (slow response) 13 A

Mains connection 110 V
1~50 Hz
Connected power 2,6 kW
Fuse protection (slow response) 30 A

Water connection
Supply temperature max. 30 °C
Supply quantity min. 700 l/h
Suction head for with
drawal from an open tank 0,5 m
(at a water temperature of 20°C)

Performance data
Flow rate: cold/hot water;
Mains
connection 240 V 280-530 l/h
Operating pressure:
cold/hot water; Mains
connection 240 V 32-120 bar
(using the supplied standard nozzle)

Flow rate: cold/hot water;
Mains
connection 110 V 280-550 l/h
Operating pressure:
cold/hot water; Mains
connection 110 V 32-90 bar
(using the supplied standard nozzle)

Flow rate: steam 280 l/h
Steam operation
mode working pressure max. 32 bar
(using steam nozzle 4.766-023)

Working temperature
-Hot water max. 90 °C
-Steam 98-155° C
Cleaning agent intake 0-11 l/h
Burner capacity 40 kW
Recoil power of the
hand spray gun max. 24 N
Sound level
according to
EN 60704-1 76 dB(A)

Operating agents

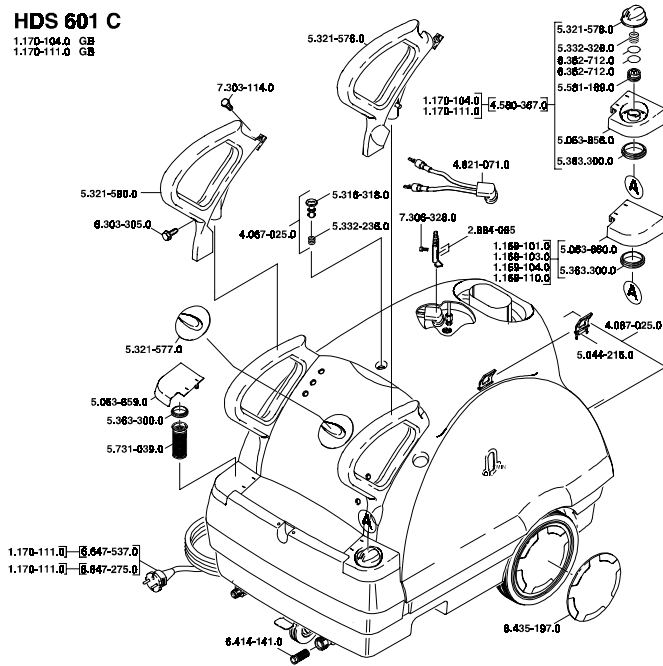
Fuel Fuel oil EL or diesel
Oil quantity 0,5 l
Oil grade
engine oil 15 W 40 (6.288-050)

Dimensions and weights

Length x width x height
940 x 600 x 740 mm
Weight without
accessories 84 kg
Fuel tank 16 l
Cleaning agent tank 8 l

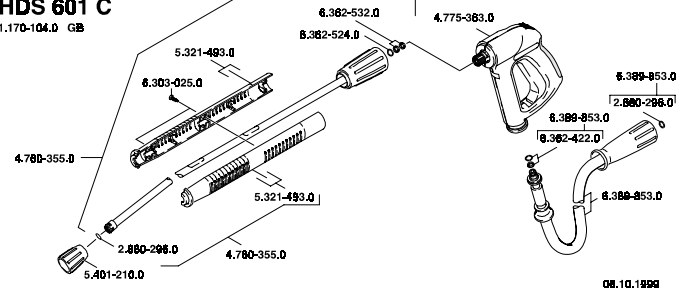
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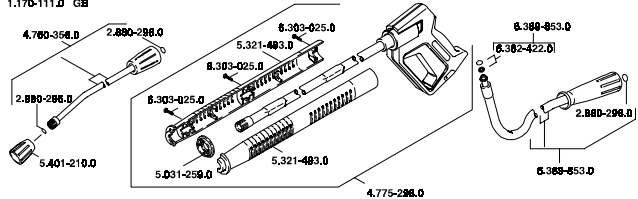
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EU DECLARATION OF CONFORMITY

We hereby declare that the equipment described below conforms to the relevant fundamental safety and health requirements of the appropriate EU Directives, both in its basic design and construction as well as in the version marketed by us. This declaration will cease to be valid if any modifications are made to the machine without our express approval.

Product: High-pressure cleaner with steam stage

Model: 1.170-xxx

Serial number: (see rating plate; to be entered by customer)

Relevant EU Directives:

EU Machinery Directive (98/37/EG); EU Low-Voltage Equipment Directive (73/23/EWG) amended by 93/68/EWG; EU Directive on Electromagnetic Compatibility (89/336/EWG) amended by 91/263/EWG, 92/31/EWG, 93/68/EWG

EU - pressure-operated units regulations (97/23/EG)

Harmonised standards applied:

DIN EN 60 335-1, DIN EN 60 335-2-79, DIN EN 55 014-1:1999, DIN EN 55 014-2:1997, DIN EN 61 000-3-2:1995, DIN EN 61 000-3-3:1995

Relevant EU Directives:

TRD 801, TRD 301, DIN 2413

Appropriate internal measures have been taken to ensure that series-production units conform at all times to the requirements of current EU Directives and relevant standards. The signatories are empowered to represent and act on behalf of the company management.



5.957-576 (08/00)

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